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ST FORMAT

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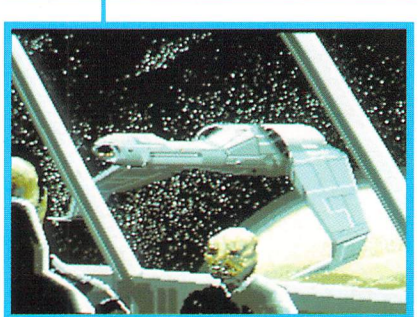
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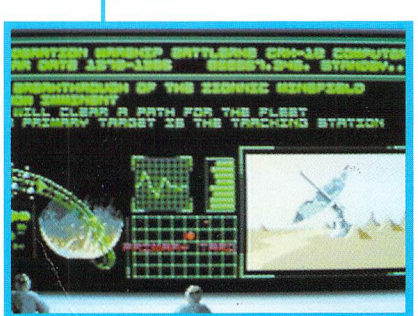
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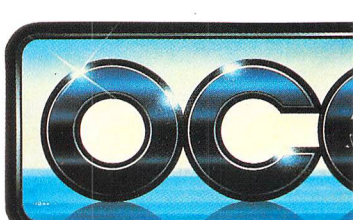






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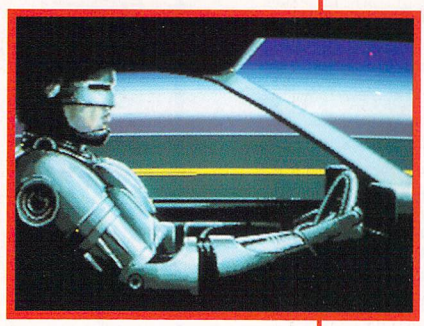


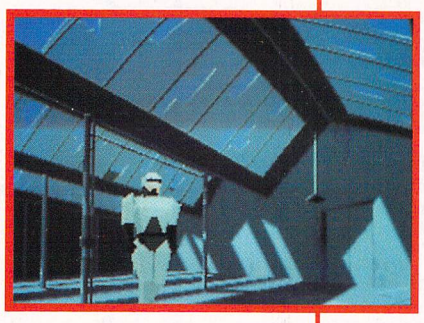
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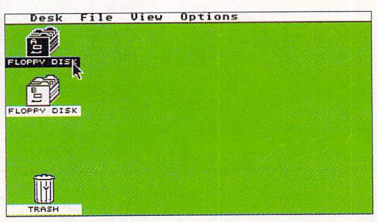
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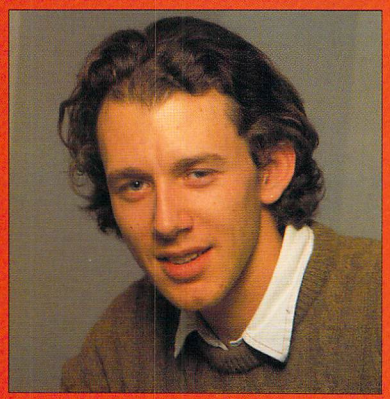
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Hello and welcome to this special issue of *ST FORMAT*. Whether you're a new hand on the ST or an old timer, there's something here for you! Even if you feel all this beginners' stuff is beneath you, chances are there's some aspect of the ST that still has you scratching your head – and just maybe, somewhere in this issue there's the solution to that one little problem...

Let's face it, the manual which came with your machine was hardly enough to get you started! On page 16 we talk you through all you need to get your ST running smoothly. Of course, once you've got your new ST motoring, you want to see just how far you can go when you push the pedal to the floor. Desktop publishing, word processing, games, graphics, business and more are all at your fingertips. On page 40 we guide you through the vast array of software you can buy for your ST. On page 106 we detail the art packages you can buy and give you step-by-step guides on how to draw your own stunning visual masterpieces. Then on page 53 we examine all the different game genres you're likely to find and pick out our 25 best games.

Even if you're strapped for cash, that's no excuse to take a back seat in the ST world. Our Public Domain reviews on page 45 help you find some of the best PD programs available for under a fiver. But you don't even have to spend this much – on this month's Cover Disk we're giving away ten essential utilities and a complete game (see the panel on the right and page 32). For the hardware fans we're lifting the lid on the STE on page 110 to reveal what all those powerful chips do. Then on page 96 we switch our attention to bolt-on hardware and reveal all you need to know before buying a printer, hard drive, second floppy drive and more.

Happy reading!

Mark Higham, *Editor.*

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THE GREAT ST COVER DISK



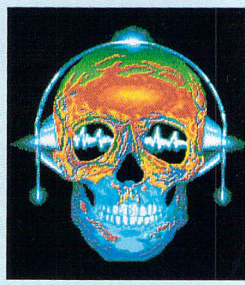
25 FILES ON THIS MONTH'S DISK

Blast your way through mutant camels; make the most of your S with ten top utilities win £500 worth MIDI music gea as part of ou massive sample compo; and more

See page 32

STEREO MASTER

A useable preview of Microdeal's new stereo sampler, offering a dazzling range of functions and stereo input even on a standard ST



MUTANT CAMELS, JEFF MINTER'S LATEST ABSORBING CHALLENGE, IS ON THIS DISK



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Complete documentation on all the ST range now available ● ST Book, Atari's new portable ST, reaches the UK

Atari release full ST manuals at last

by Neil Jackson

After years of waiting and hoping, ST owners can finally get their hands on a *real* ST manual, thanks to a far-reaching decision by Atari to make their detailed ST documentation public.

Atari have announced that they are releasing the complete set of documentation for the entire range of ST and STE micros. Mainly aimed at programmers, the documents contain some crucial information which the average ST owner could previously only guess at.

Much of the information has been available to professional Atari-registered programmers since the earliest days of the ST – but at a high price. This is because the documents formed a small part of a development package which included updates, technical support and hardware loans.

The original development kit was (and still is) covered by a Non-Disclosure Agreement which legally prevented developers from passing on their ST knowledge to the general public. Atari have now decided to make the document part of the development kit available to all ST owners, with no strings attached.

Alistair Bodin, Atari's Software Support Manager, had this to say on the new DocSupport scheme: "This makes the documentation for the ST and TT range available to the likes of hobbyists, educational establishments and budding developers.

"If you study it carefully, you can learn to create robust applications which operate correctly with all configurations of every Atari TOS machine from the earliest 520ST to the Mega STs, the STEs, the new Mega STEs, the advanced TTs, machines in the pipeline such as ST Book [Atari's new portable – see page 8] and STyle [the keyboardless ST that can read your handwriting] and also future machines still in the development stage."

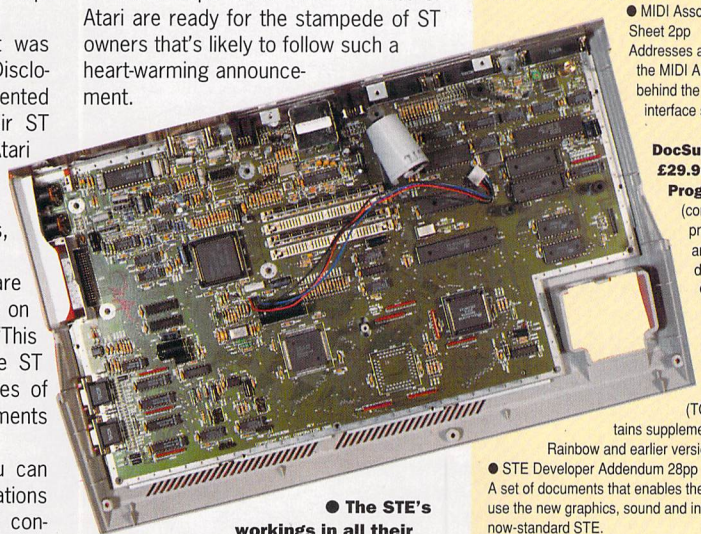
Bodin's comments are unlikely to fall on deaf ears – ST owners have been waiting nearly six years for some Atari-approved information on the ST alone. It seems that Atari have begun to realise that only by encouraging support for their machines at all levels can they ensure their long-term future and popularity.

Indeed, this new sentiment is something that Bodin is actively promoting: "We want you to produce astonishing new products that enhance the value of our computers. We wish you success in your endeavours and stand ready to help you achieve that success."

Let's hope Bodin and the rest of Atari are ready for the stampede of ST owners that's likely to follow such a heart-warming announcement.

"We want you to produce astonishing new products that enhance the value of our computers"

ATARI SOFTWARE SUPPORT MANAGER



● The STE's workings in all their glory. *ST FORMAT* can tell you what's what (see page 110), but now Atari are revealing how it all works too.

A GUIDE TO THE NEW GUIDES

The new manuals from Atari are arranged into several different packages for ease of use. To get hold of yours, contact Atari (UK) Spares Administrator on ☎ 0753 533344.

DocSupport One Kit – £29.99 – GEMDOS & General Programming

● Atari GEMDOS Reference Manual 48pp
This describes the internals and use of GEMDOS on the ST. There's a tutorial and introduction for beginners, and a reference manual with a host of appendices for GEM programmers.

● Pexec Cookbook 22pp
Pexec is the internal command used to start your programs from the Desktop. This cookbook tells you everything you need to know about starting and terminating programs.

● A Hitchhiker's Guide to the BIOS 78pp
The Basic Input/Output System (BIOS) is the heart of the ST operating system. This guide explains all BIOS and Extended BIOS (XBIOS) internal functions, error-handling, system variables and interrupts.

● AHDI 3.00 Release Notes 20pp
The Atari standard for hard drives is unmasked in this guide. Learn how to partition and set up hard drives to make them ST efficient.

● Still Another Line_A Document 42pp
The Line_A internal functions described in this manual are the core of the ST's graphic capability.

● Intelligent Keyboard Protocol 22pp
The ST's keyboard is linked to the main processor via the Intelligent Keyboard Interface (ikbd). Use this guide to make the most of your mouse and joysticks in your programs.

● Atari CHKDSK3 Documentation 4pp
A short guide to Atari's handy CHKDSK3 program, which analyses a disk file-structure and attempts to repair it if it is damaged.

● MIDI Association Address Sheet 2pp
Addresses and information about the MIDI Association – the body behind the computer-music interface standard.

DocSupport Two Kit – £29.99 – New Machine Programming Guides
(contains two disks with programs, examples and further useful documentation)

● Rainbow TOS Release Notes 68pp
This document describes the changes made in Rainbow TOS (TOS 1.4). It also contains supplemental information on Rainbow and earlier versions of TOS.

● STE Developer Addendum 28pp
A set of documents that enables the ST developer to use the new graphics, sound and interface ports on the now-standard STE.

● STE TOS Release Notes 18pp
A guide to the changes made in the STE TOS (TOS 1.6 and 1.62). It covers the new features like the cookie jar (a method of passing information to programs) which are now standard.

● TT030 TOS Release Notes 32pp
This document describes the changes made in TT030 TOS (and Mega STE TOS), and covers new system calls and the two kinds of memory.

● TT030 Hardware Reference Manual 32pp
A guide to the hardware details of the TT, including the memory map.

● Atari VME Expansion for TT030 and Mega STE Products 6pp
A document explaining the single slot VME expansion and the minor differences from the VITA C1 specification.

● Disk 1 HDX 4.0/Rainbow TOS/STE TOS
A disk full of utilities for use with hard drives, Rainbow TOS and STE TOS. Programs and source code for using the new features are included.

● Disk 2 Demonstrator/XControl Panel
Contains a GEM program demonstrator which enables self-running, real-time demos of most GEM applications. Also contains example code for the new Extended Control Panel, plus icons and documentation enabling the writing of XControl modules (CPXs).

DocSupport Three – £49.99 – GEM VDI & AES

● GEM Virtual Display Interface (VDI) 302pp
This guide describes the features and operation of the GEM VDI and the Graphic Device Operating System (GDOS). It covers the use of VDI functions from within your own programs and provides a full library of C-language files.

● GEM Application Environment Services (AES) 214pp
Introduces the concepts and structures behind GEM AES, enabling you to write solid GEM applications and programs. The major features are described along with the correct calling sequences and a list of all AES program libraries.

DocSupport Four – £99.99

● A bumper pack made up of DocSupport One, Two and Three together.

DocSupport Five – £29.99 – Hardware & Chip Specifications

● Engineering Hardware Specifications 38pp
A guide to the ST's hardware characteristics and idiosyncrasies.

● Application Notes on the Atari Computer System Interface (ACSI) 26pp
Covers many aspects of the ACSI system which enables the ST to interface to Atari hard drives.

● Chip Specification 164pp
Documentation on the following chips is included: MC6850 (MIDI & Keyboard interfaces), MFP68901 (Multi-Function Processor), AY-3-8910 PSG (Programmable Sound Generator) WD1770 (Floppy Disk Controller) and the Blitter chip.
The Atari monitor specification and Cartridge Port diagrams are also included.

TOP DEALS ON THE TOP ST MAG EVERY MONTH – PAGE 142

ST Book arrives this month

by Neil Jackson

The ST Book, the radical new portable ST with LCD screen, is finally to get a public airing at the 16-bit Show this month, Atari have revealed. The ST Book, which is expected to sell for around £1,500, is planned as the biggest launch of the show.

Darryl Still, Atari UK's ST Product Manager, is keeping his fingers crossed that the ST Book can make its debut at the show in February (see the box on this page). "It'll be our first major show piece of the year and we're putting on quite a bit of razz," he said. "We're waiting with bated breath; it's such a lovely looking machine."

The new machine, which features up to 4MBytes of internal RAM and a 40MByte internal hard drive, completed its initial production proofing run of 80 units early in December.

After a minor alteration to one of the internal components, the first mass-scale production began, starting with 1,000 1MByte RAM ST Books destined for the US. These units were built, tested and shipped in a mere 11 days – and a further increase in production levels was scheduled for January, when production of the 4MByte ST Book started up in earnest.

Prior to this, the only ST Books to be found in the world were being jealously guarded by Bill Rehbock, Atari USA's Director of Applications Software, and Sam Tramiel, Atari USA's President. Tramiel took his ST Book all over Europe during his recent visit here. According to sources at Atari USA, Tramiel writes all his memos and FAXes on the ST Book, and uses it to store his appointments, schedule, phone and address data. Such are the perks of being in charge.

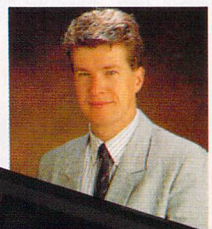
In tests, the ST Book demonstrated an impressive battery life of over eight hours using the separately-supplied rechargeable Ni-Cad pack, but the machine is supplied with an alkaline battery pack as standard. This unit provides around three hours' worth of power – comparable to most portables and adequate for most uses.

Atari UK have yet to announce a price for the Ni-Cad pack, which is supplied in the States with a combined mains adapter and battery charger, though it's expected to sell for around £150.

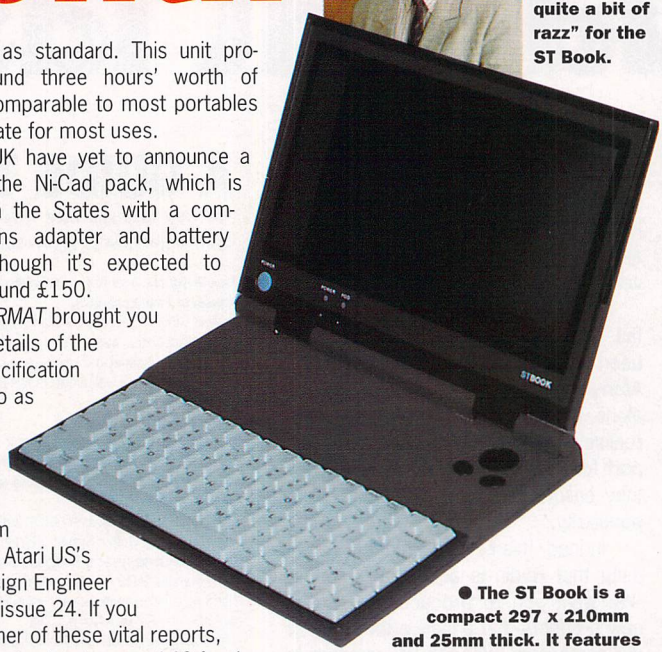
ST FORMAT brought you advance details of the Book's specification as long ago as April (*STF* 22), and further exclusive details from Tracy Hall, Atari US's Senior Design Engineer himself, in issue 24. If you missed either of these vital reports, catch up by turning to page 142 for the *FORMAT* back issue service.

"We're waiting with bated breath; it's such a lovely looking machine"

DARRYL STILL



● **Atari UK's Product Manager, Darryl Still: "putting on quite a bit of razz" for the ST Book.**



● **The ST Book is a compact 297 x 210mm and 25mm thick. It features MIDI ports just like a full-size ST, but in a portable case ideal for musicians.**

Showing off the ST

The Fifth International 16-Bit Computer Show, the first big show of 1992, kicks off at Wembley Exhibiton Centre this month. The three day event takes place on Friday 14, Saturday 15 and Sunday 16 February, and focuses on the business, entertainment and education aspects of the ST (oh, and a couple of 16-bit toys we can't remember the names of).

To order yourself a ticket in advance and save time queueing, call the show's Ticket Hotline ☎ 0726 68020. Tickets are a mere £5 each.

Companies from the UK, USA and Europe will be using the show to launch new software and hardware. One of the major exhibitors is Atari UK, who will be demonstrating music, education, business and leisure packages – most of them on the ST.

Atari are hoping to launch the ST Book (see separate story) and a number of other new offerings for 1992. So that everyone can see just how good the ST really is, Atari have installed a 32-foot long video wall which will show the ST at work.

Other exhibitors at the show include:

- **Business exhibitors: Compo Software, Power Computing, Checkmate Digital, Pioneer Office Automation, Hi-Soft, GFA Data Media, Pandaal Marketing, Precision Software – Oxxi, Surface UK.**
- **Education exhibitors: Soft Stuff Software, LCL Educational Software, Adamsoft, Computer Manuals.**
- **Entertainment and Leisure exhibitors: Trojan Products, Rombo Ltd, On-line, Care Electronics, Syntronix Systems, Association of Atari User Groups**
- **Music exhibitors: Brixton Exchange Mart, Roland (UK) Ltd, Atari Corporation (UK).**

RELEASES, RUMOURS AND REVELATIONS

News and snippets from all over the ST universe

● **The Christmas season has caused a national shortage of 3.5 inch disks this year, bringing confusion and chaos with it. A low level of imports from disk manufacturers like Sony and TDK, combined with the usual high demand for disks at this time of the year, has resulted in many suppliers going short. If you're thinking of buying disks to boost your collection, check with your suppliers before ordering – you could save yourself from delays and short-term price-rises if you shop around.**

● **Goodman PDL have successfully negotiated a deal with Atari to exclusively distribute the popular *Neochrome* art package for the ST. As *ST FORMAT* reported in issue 28, Atari recently asserted their ownership rights over *Neochrome* and 43 other programs previously treated as in the Public Domain. (If you missed the full list in that issue, turn to page 142 for how to order back issues.) A limited number of original-package *Neochromes* is now available at a budget price of only £6.95. Contact Goodman PDL on ☎ 0782 335650**

● **Laser Distribution have just announced that they are distributing *Art Master*, a new art package for the ST, at £29.95. The program contains features like multiple workscreens and advanced block manipulation which enables images to be stretched and mapped onto spheres and other shapes. *Art Master* supports all *Neochrome*, *Degas* and IFF picture file formats and can use the entire STE colour palette. Laser are also able to offer *Art Master* bundled with their video-titling software for £44.95. Contact them on ☎ 0579 82426.**

● **Got *Calamus?* Bemused and flummoxed by it? Get hold of *A Practical Guide to Calamus Desktop Publishing on the Atari ST*, written by *ST FORMAT's* very own education specialist Terry Freedman – he has several strings to his bow, it seems. The book takes you through using the program and shows you how to produce documents from a newsletter to a book. It's £14.95 from Kuma Computers on ☎ 0734 844335.**

● **Music users might be more interested in *Music in Sequence*, a complete guide to MIDI sequencing by William Lloyd and Paul Terry. It shows how to interpret music notation using a sequencer and covers topics like synth-playing techniques and MIDI controllers. It costs £12.95 and is available from Music Sales Limited – they're on ☎ 0284 702600.**

● **Steinberg have released *Synthworks SQ* for the Ensoniq SQ series. It makes editing using the Ensoniq much easier, thanks to its graphical user interface and the "Librarian" function, which can store and search for specific sounds. *Synthworks SQ* needs an ST with at least 1MByte of RAM to run. It's £150 from Evenlode Soundworks Ltd ☎ 0993 898484. Also available is *Tango*, an improvisation program. *Tango* records the music played on a master keyboard into the ST via MIDI, and modifies it in real time, creating its own melodies from your input. In effect it provides "the other six members of your band." *Tango* is £211.50, also from Evenlode.**

● **Ladbroke Computing have announced the release of new hardware protection system for the ST. Called *ST Secure*, it consists of a 1 inch square board which you fit into the ST (no soldering) and which resets the ST 45 seconds after booting (from a key disk) if the correct password isn't entered. *ST Secure* is £25 from Ladbroke on ☎ 0772 203166.**

50,000 Members

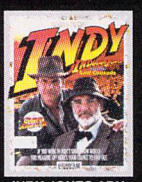
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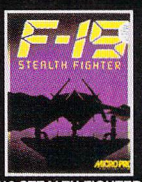
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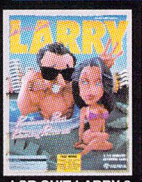

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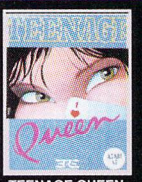

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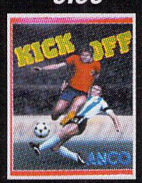

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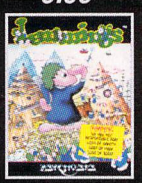

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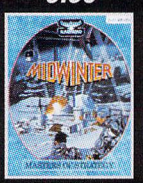

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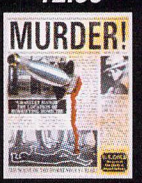

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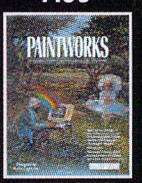

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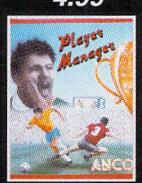

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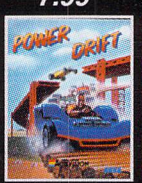

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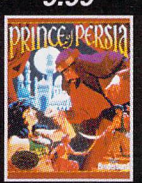

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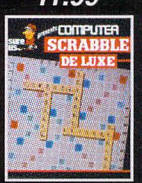

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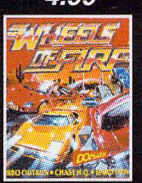

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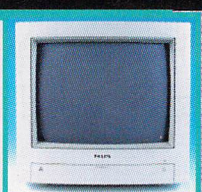

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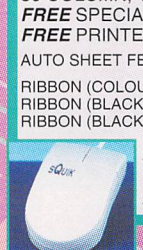
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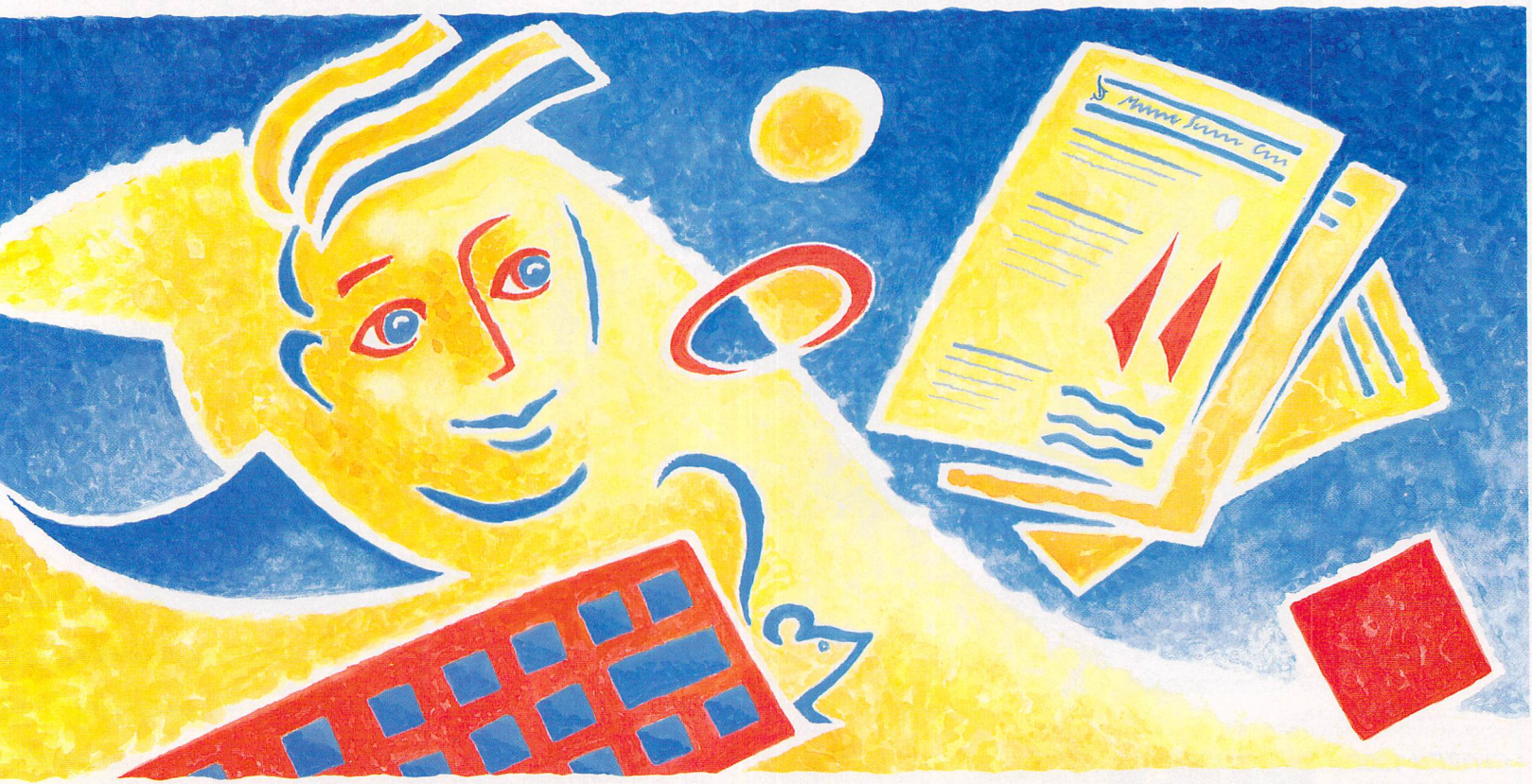
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STF 0292

Lucasfilm unveil more secrets

by Mark Higham

They changed the world of ST gaming with SCUMM, and now Lucasfilm are poised to introduce another revolution certain to add a new dimension to games. It's called iMUSE (trust the Americans to give it a name!) and it's a unique sound system which adds ever-changing atmosphere to adventures. The first game to receive the iMUSE treatment is *Monkey Island 2: Le Chuck's Revenge*, due out in March. This is the follow-up to the *FORMAT* Gold rated *Secret of Monkey Island*, which was widely acclaimed as the greatest game of 1991. Their next adventure, *Indy 4: Fate of Atlantis*, is also set to include this iMUSE system.

iMUSE stands for Interactive Music and Sound Effects – there's no explanation why the i needs to italicised. At a brief stop-over in Birmingham in December, Lucasfilm joint Chairman Doug Glenn demonstrated the future of Lucasfilm adventures. iMUSE responds to the action in the adventure in a very graceful way. Instead of writing individual pieces for specific scenes in a game, the composers write tunes for the whole game so that you can create different moods depending on what you want to do. Being interactive, iMUSE adjusts the music depending on how you react to certain problems. For example, on Scabb island there's a very light and happy tune, but as you progress the tunes become darker and more depressing.

iMUSE follows hard on the heels of SCUMM – an almost equally bizarre acronym standing for Script Creation Utility for Maniac Mansion. This was a programming language developed by Lucasfilm to enable them to write their adventures more quickly and easily.

Doug attributes the success of their adventures to Lucasfilm's movie-making history. A division of George Lucas's film empire (which created such cinema greats as *Star Wars* and *Indiana Jones*), Lucasfilm Games is in the perfect position to exploit the techniques movies discovered years ago. "In movie terms we're probably at about 1905," grins Doug. "That was the tenth anniversary of movies, a time when movies were shown regularly. It was 20 years before they figured they could move the camera left and right. Much later they learned how to zoom."



● ***The Secret of Monkey Island*** **was one of the hit games of 1991. With its new music and sound effects system, *Monkey Island 2 – Le Chuck's Revenge* (left), may beat it in '92. It certainly should be iMUSE-ing, at any rate...**

Speak to Doug Glenn for more than a few minutes and you realise that Lucasfilm aren't particularly interested in amassing giant profits – it's the art of creating games which drives them forward. "It used to cost us between £20,000-£30,000 to develop a game – now it costs us ten times this much. Even so, in a few years' time we'll look back at these games and laugh like you would at a Buster Keaton movie now."

Besides iMUSE, *Monkey 2* is also benefitting from an improved user interface. The number of verbs has been dramatically reduced and an array of icons has been added to make the interface more logical. The humour is superb, including such memorable lines as "Two, four, six, eight, let's expectorate." Doug readily boasts that *"Monkey 2* is our best graphic adventure ever – it's the funniest and hangs together well." We'll find out for ourselves when the ST version is released in March.

● ***Monkey 2: LeChuck's Revenge*** **is being distributed in the UK by US Gold. They are currently debating whether to convert *Indy 4* to the ST – if you think they should, write to Danielle Woodyatt, US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.**

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Previews

Not feeling yourself today? Then why not try being somebody else for a bit? Ed Ricketts takes time off from staring vacantly at nothing for hours on end for just long enough to have a look at Domark's up and – indeed – coming RPG, *Shadowlands*

Domark have decided to grow up. After years of releasing arcade licences and mediocre action games, they've taken a big step and signed their first role-playing game, *Shadowlands*. It's due sometime around March.

The team that convinced Domark an RPG was for them was Teque London, who were responsible for the recent manic beat-'em-up *Pit-Fighter*, among other things. The three Teque members behind the project are Dean Lester (designer), Barry Costas (programmer) and Mark Anthony (graphics).

Dean explains why they felt the need to write the game: "We've all played *Dungeon Master* [the classic maze adventure] many times, and although we love it to death we felt there were several areas where it could be improved. We didn't want to copy the game but to keep its spirit. We also wanted to convert people who have never played an RPG before to this genre, by making the game appear more arcade-orientated at first. We want to fool people – not to rip them off, but to lead people who would never touch this sort of game into it gently, so by the time they realise it's an RPG they're hooked."

Shadowlands is a puzzle-loaded RPG in the style of *Dungeon Master*, but seen from an isometric 3D viewpoint. You take charge of four characters and lead them through a series of 14 levels, solving the puzzles en route to reach the next level and fighting the beasties scattered around – the usual sort of thing. But there are a number of innovations in *Shadowlands*.

First and most obvious is the omnipresent effect of light. As the title suggests, the land you're in is very dark, so you can only ever see anything with the aid of a light source – a torch, a fireball, or anything else you can find. To implement this, the team created a new technique by the impressive name of PhotoScape (™). Dean describes this as "almost like raytracing in real time." The position of any light source is constantly taken into account, and the strength of the light coming from it dictates how much you can see by it. If the ST ran at 50MHz and had 16 million colours it would be possible to calculate the effect of light down to individual pixels; as it is, the effect is averaged to work with larger squares, so a rough circle of light surrounds any source.



● One of the innovations in this forthcoming RPG is the use of light. Here, one member of the party has a torch. Objects close to the party can be seen clearly, but outside the circle of light it's impossible to tell what they are. That black thing in the background is a chest – but it might have been a pit...



● A typical puzzle. Two characters can teleport into these rooms, where there are keys lying conveniently about. But they don't fit the doors... Read the sign on the wall. It says "Swapsies." Solution: throw the keys to each other across the pits – you find they fit the doors. Then it gets a little bit harder.

Light can also be used to trigger off puzzles, thanks to the cunning placement of light-sensitive photo-receptors. So, for example, you might be searching around the walls of a room with your torch in hand to find any hidden objects, and unwittingly set off a receptor, closing the door to the room and unleashing a monster.

As well as photo-receptors, there are teleporters, switches (hidden and otherwise), floor pads, locked doors, hints on the walls, and all the other tricks and traps you'd expect of a good *D 'n' D*-style game. Things can get complex. Say you throw a lighted torch into a teleporter; it could end up in another level, set off a photo-receptor which opens a locked door and releases a monster. The monster stumbles about and treads on a pressure pad, which in turn opens another locked door on the level you're in. You wouldn't actually know what opened the door, but with experience you could learn the rules of the objects in the game.

Another innovation: your party of characters is fully dividable. It's perfectly feasible to lock one of them in a room at the start of the game, go off and play through every single one of the levels in the game, work your way back and find the character still sitting there. (Of course, he may have been killed in the meantime.) Any character can perform any action on any level, regardless of what anyone else is doing. Many of the puzzles depend on this feature of gameplay, forcing you to split the team at certain points.

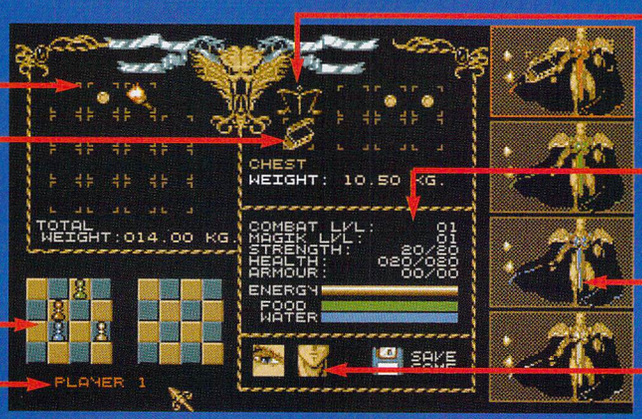
"We didn't want to discriminate against anyone who bought this game," says Dean. "If you've never played an RPG, it doesn't matter. If you get stuck, there are always hints about to help you. Everything is there in the game to make it completable – but that doesn't mean it's easy!" ***stf***



● Characters can either be generated at random for you, or you can put in a bit of effort and create a proper party for yourself. Faces and names can be specified, and clicking on the card at the top of the screen pseudo-randomly alters the values for combat and so on.

SAINSBURY'S BAG NOT INCLUDED

A great deal can be done in *Shadowlands* from the inventory screens. Again, you might think it looks a little bit like *Dungeon Master* (you move everything from place to place by dragging it about), but then with a system as tried and tested as that, why change it?



The 16 slots you have currently available to carry objects in. When opened, chests give you an extra six slots

The object this character is carrying in his right hand

The chessboards are used to determine the players' marching order. Just drag the pieces around and the characters adopt their new relative positions. Use the right-hand board to split the group

Player's name

Use these scales to transfer "magik power" to or from an object. If an object has run out of power you can transfer some of your own energy to it and revitalise it. Spells, such as fireballs, are available as sheets of parchment, and are used in the normal way

The stats you need to keep an eye on, just to make sure the character is alive and fairly well

Objects can be given directly to other characters by clicking on their icons

These icons enable you to sleep or eat something. Characters can sleep independently of each other

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New to the ST? The Atari manual might not have been particularly inspirational but we're here to help. Welcome to the complete beginner's guide. Tim Anderson guides you through all you need to know

SWITCHING ON OR BOOTING UP?



● **Simply hold down <Control>-<Alternate>-<Delete> and your ST becomes a housewife! Er, maybe not...**

When you turn on a vacuum cleaner or a pop-up toaster, it just starts working. Switching on an ST is a bit more involved, because it doesn't just wake up – it gets dressed and does the housework as well. Because of this, computer buffs talk about "booting" the machine, rather than switching it on. It means the same: think of it as "booting the ST out of bed." There's another good reason to call it "booting." Sometimes, it's handy to make your ST think it's just been switched on, without actually touching the on switch. That's called "rebooting," and it's usually done by pressing <Control>-<Alternate>-<Delete> together (this only works on recent STs or the STE), or by pressing the little button at the back left, near where the mains cable goes in.

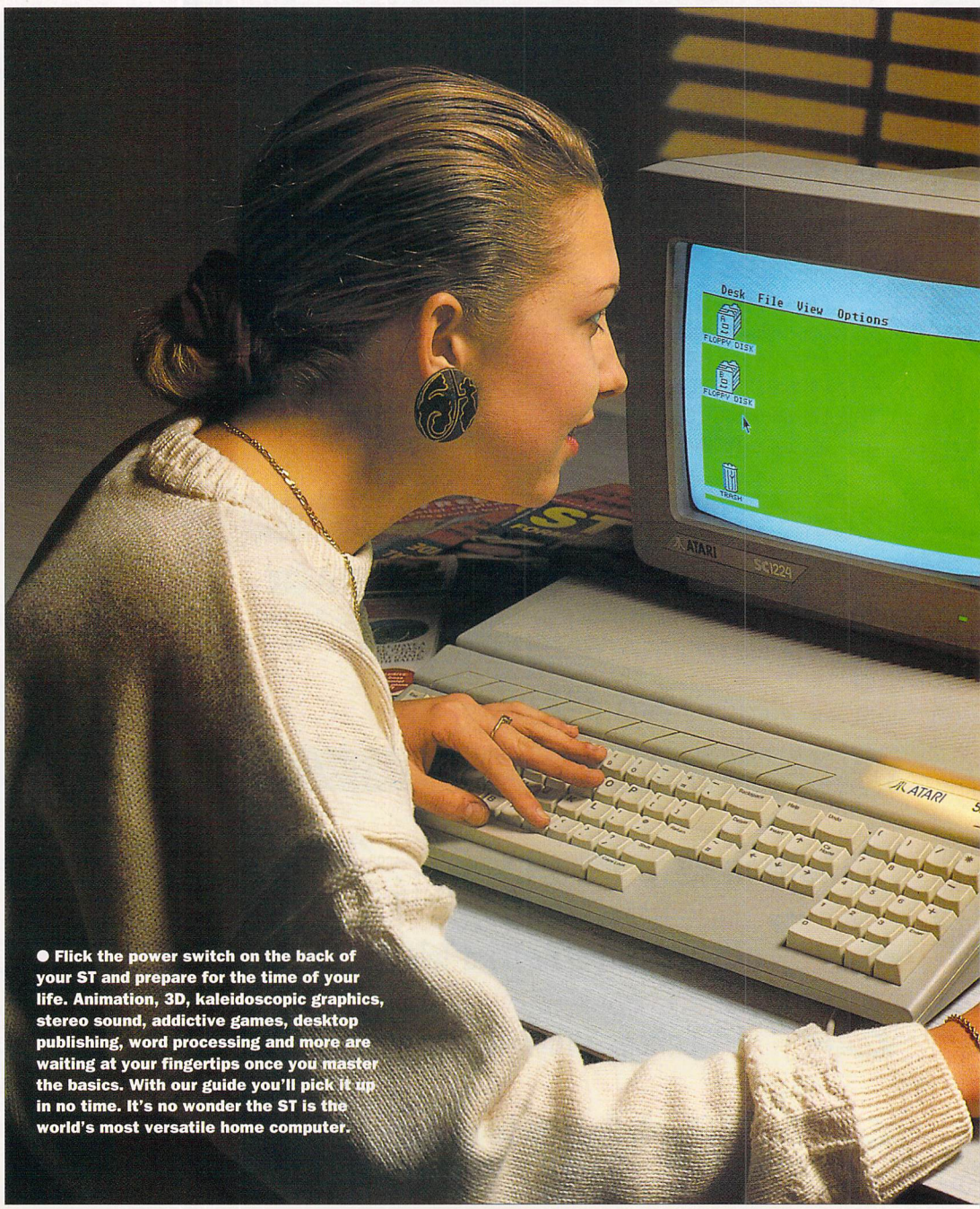
When you boot up, your ST does these things:

■ It looks in drive A for a **disk.** If it doesn't find one, or if the disk is unformatted (see **Disk facts, page 18**), the drive clunks away for a while until your ST decides there isn't anything there, and starts up anyway. ***Tip: normally boot up with a disk in drive A – it's much faster.***

■ It looks in the **folder** called AUTO, if there is one. If it finds one or more programs there, it runs them automatically (see **Games, page 18).**

■ It looks for any **files** with names ending **.ACC.** It only looks at the top level of the disk, and doesn't find any ACCs within **folders.** ACCs found are loaded as **Desk Accessories** (see **Desk Menu** on **page 20)**

■ Next, the ST hunts for a file called DESKTOP.INF. This tells your ST which **resolution** to start in, which colours to use, which **windows** to open up automatically, and other details. In fact, it will be just as you left it last time you gave a "Save Desktop" instruction from the **Options** menu. On the STE, it can also contain an instruction for a program to run automatically.



● **Flick the power switch on the back of your ST and prepare for the time of your life. Animation, 3D, kaleidoscopic graphics, stereo sound, addictive games, desktop publishing, word processing and more are waiting at your fingertips once you master the basics. With our guide you'll pick it up in no time. It's no wonder the ST is the world's most versatile home computer.**

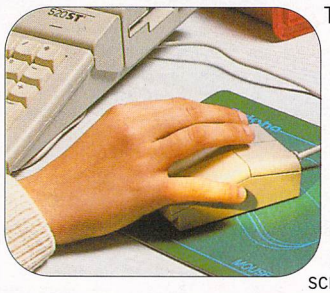
GEM – THINKING IN PICTURES

The ST is easy to use, because it presents information and enables you to carry out functions graphically, using pictures and graphics to represent objects, files and functions. The little images on the ST's opening screen, or Desktop, represent the disk drives; the dustbin represents the delete function. Pictures like these are called icons. As you use the ST, you see a lot of icons, both on the Desktop and in many other programs, making them very simple to use. The ST's graphical system is called GEM, which stands for Graphics Environment Manager.

If you've only got one disk drive, you may wonder why the Desktop shows two. For copying disks and files, it's useful to pretend there are two drives, and that's what GEM does. Copy a disk, for example, by dragging one icon over the other, and the ST tells you when to swap disks in the drive.



USING THE MOUSE



The mouse may seem a bit awkward at first, but using it soon becomes second nature. When you roll the mouse over a flat surface, a pointer on the screen moves in the same direction. If you run out of tabletop or mouse mat before the pointer gets where you want it, just pick the mouse up, move it back to the centre, put it down again and carry on rolling. The pointer doesn't move unless the mouse is touching the surface. ***Tip: you can move the mouse pointer using the keyboard as well. Press <Alternate> and any of the arrow keys. For very fine movements, try <Alternate>-<Shift>-Arrow key.***

BASIC MOUSE TECHNIQUES

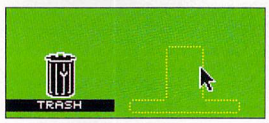
Clicking is when you press the left mouse button and let go. If the pointer is over an icon or button when you click, it selects that item. Often, the icon changes colour to show that it is selected. If the pointer is over a line of text (as in the **Fileselector),** clicking moves the text editing cursor to that point. Incidentally, this makes a very speedy way of getting about a word processor document. Keyboard alternative: <Alternate>-<Insert>.

Many programs don't use the right mouse button at all; it's a matter of studying the manual. Keyboard alternative: <Alternate>-<Home>.

Double-clicking is two left-button clicks in quick succession. This takes a bit of getting used to if you're new to the mouse.

How can you tell the difference between two single clicks and one double-click? Fortunately, you can experiment with different settings in the **Control Panel** until you find one that suits you. The general effect of a double-click is that it not only selects the item under the mouse pointer, but also activates it. So, for example, double-clicking on a program icon actually runs the program. Double-clicking on a file displays its contents to the screen.

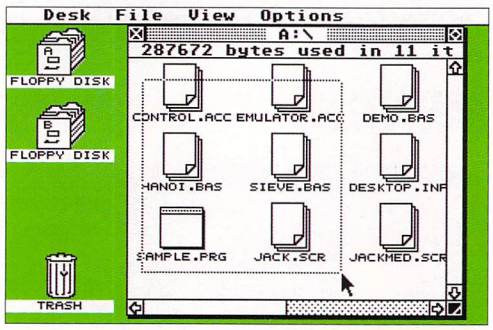
DRAGGING WITH THE MOUSE



Dragging is a technique for moving "objects" on the screen. Say, for example, you wanted to move the Trashcan from bottom left to bottom right, on the Desktop screen. Place the mouse pointer over the Trashcan, press the left mouse button and this time hold it down. Now, when you move the mouse, the Trashcan moves with it. You see a ghostly outline of the Trashcan as you move. When you're happy with the new position, release the left button, and the Trashcan is glued to a new spot on the **Desktop.** Like it there? Use "Save Desktop" from the Options menu and the ST remembers where you put it next time you **boot up.**

RUBBER BANDING

Rubber Banding, or lassoing, is a method for selecting a number of items at once. With the pointer

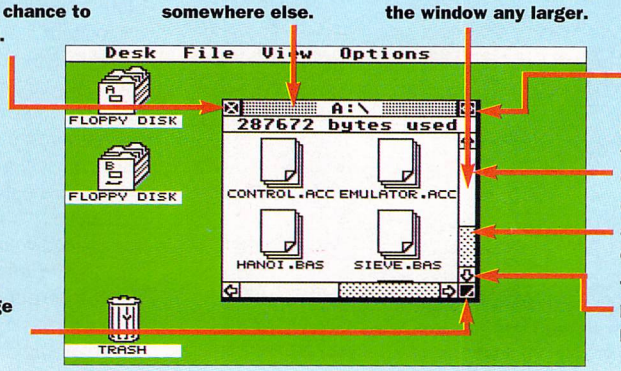


anywhere on the Desktop (but not over an icon), click and hold down the left mouse button. Now move the mouse down and right, and you see a ghostly "rubber band" appear that starts in the corner where you clicked and stretches as you move the mouse. Stretch it far enough so that it encloses an icon or two, and then release the button. All those items within the band are now selected. Click once on the **Desktop** to de-select them again.

Tip: This technique is particularly useful within directory windows, for selecting a number of files at once, and in drawing programs.

WORKING WITH WINDOWS

A lot of things on the ST happen in windows – instead of filling the whole screen, something you're working on appears in a screen-within-a-screen. The good thing about this is that you can often have several windows open at once, almost as if you were running several STs simultaneously. This diagram shows the various parts of a window.



DISK FACTS



● You're not going to get far before you encounter floppy disks. Once you've mastered the art of moving the mouse, your next step is to load some programs from those very unfloppy floppy disks.

Those square, hard plastic wotsits are called floppy disks – because inside the case is a thin magnetic flexible disk. The ST uses 3.5 inch disks, but be careful when you buy them because there are three different kinds:

● **Single-sided.** Unless your ST is more than three years old, you should avoid these. They work okay but only hold half as much as double-sided disks. Some commercial programs come on single-sided disks, for the sake of those older STs around.

● **Double-sided, double-density.** These are the ones you should normally use. The ST disk drive reads both sides of the disk without your having to turn it over. In fact, the only difference in use between a single-sided and a double-sided disk is the extra capacity you get.

● **Double-sided, high density.** More expensive than ordinary disks, these have an extra hole punched in the top left of the case and the disk inside is made of higher grade material. Don't buy them, though. The ST disk drives can't make use of the extra capacity. In fact, they work less reliably than double-density disks. And if you try to read a high-density disk in the ST, you just get nasty messages.

FORMATTING THE DISK

Whether you have single- or double-sided disks, they aren't any use until they are formatted. The ST needs to check the surface of the disk, and to write magnetic lines on it so that it can find its way around. This process is called formatting. To format a disk, pop it in the disk drive, select the icon for that drive by clicking on it once, and then choose "Format" from the File menu. A dialog box pops up. Check or alter the information in the resulting box, and click on OK. *Beware! – Formatting a disk which already has files on it permanently wipes out all the files.*

THE WRITE-PROTECT TAB

Take a look at the top right of the disk and you'll notice a small sliding tab. If you slide this to the open position – so you can see through the hole – then the disk is write-protected. That means the disk drive refuses to write information to or delete information from the disk (even viruses can't be written to disk – see the "Infection" panel on page 25). It's a good precaution with disks you can't afford to tamper with – like the *ST FORMAT* Cover Disk or the master disks that came with your stonking new £200 desktop publishing program, for example...

MENUS



● Menus give you access to a range of features with a simple movement of the mouse – no need to remember a series of keyboard shortcuts.

Many important ST operations use drop-down menus. Why "drop-down?" Well, move the mouse pointer up to one of the headings along the top of the Desktop screen, and a menu magically drops down. Run the **pointer** down the list of choices, and each choice is highlighted as you move over it. When you find the one you want, click the left button and it happens. Oh – so you didn't actually want any of the choices? No problem. Move the mouse right away from the menu and click the left button – it meekly folds up again. Alternatively, move the pointer along the line of menu headings, and other menus drop down as you go. Simple.

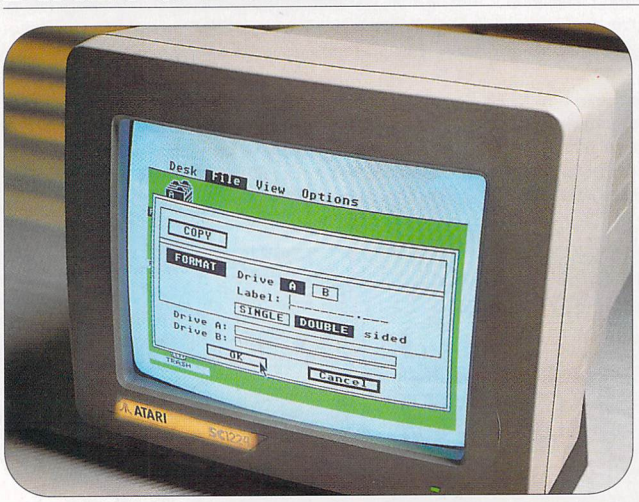
"GREYED OUT?"

Some menu choices are only possible at certain times – for example, you can only **format** a disk if you have first selected a disk drive. When they're not available, the ST tells you so by showing the unavailable choices in faint type.

GAMES, GAMES, GAMES

The ST is brilliant for games; even if you got your ST for word processing or the like, the chances are you have a game or two as well – and if not, check out Jeff Minter's *Mutant Camels* on this month's Cover Disk (see page 32). Most games aren't loaded in the same way as serious programs. Usually, you simply pop a games disk in drive A and reboot. Then the game loads and runs automatically. Games programmers often want to squeeze the maximum from the ST, in speed and use of available memory, so they tend to bypass the usual GEM operating system. You can't usually copy a games disk because games are formatted or coded in such a way as to make ordinary copying impossible, to protect the copyright in the program. Disks are normally very reliable; but if one wears out, you should be able to get a replacement from the games company – usually free of charge. Contact them directly if you have any problems.

DIALOG BOXES



● Do you really want to do this? Are you sure? Oh, if you insist then go on, but don't blame me if it all goes wrong – it's your fault!

Quite often, the ST asks you to make choices, or to confirm that you really want to go ahead with something you've asked for. That's when you see a **Dialog Box.** Usually there are one or more choices made by clicking on buttons, and sometimes a name to type in. Then there are two exit buttons, one labelled "OK" and one marked "Cancel." OK activates the choices you've made; Cancel gets rid of the dialog box without causing anything to happen. It's nice to know you can change your mind!

Tip: if one of the buttons has a bold border, you can select it by pressing <Return> instead of clicking the mouse.

TEN COMMANDMENTS

1. Always keep backups.
2. Never plug anything into your ST or unplug anything from it while it is on.
3. Write out disk labels before you stick them on. If you have to amend them afterwards, use a felt tip pen and press very gently.
4. Don't touch the monitor screen while your ST is running. You may pick up a static charge which can damage the ST.
5. When you switch on, turn the ST on last, after the monitor, printer, external disk drive, or whatever. When you switch off, turn the ST off first.
6. Always keep backups.
7. Make sure you subscribe to *ST FORMAT* – see p142
8. Thank God you didn't get an Amiga. It's slower than the ST and flickers badly in high resolution.
9. Always keep backups.
10. Always keep important disks write-protected.

DISK CARE

The amount of information stored on that tiny 3.5 inch disk is mind-boggling! Disks are amazingly reliable, but, not surprisingly, things can go wrong. In particular, heat, damp and magnetism do them no good. Keep them away from loudspeakers, direct sunshine, radiators, and so on. Even more important, keep backup copies of everything.

BACKING UP

Disks wear out. Sometimes there are power cuts. Sometimes you might delete a precious file from a disk by mistake. The only solution is to keep copies of all the work that you would mind losing. And when you get a new program (games aside, because these are specially formatted so you can't copy them), the first thing you must do is to write-protect the disks and then copy them. Put the originals somewhere safe, and work from the copies. Then you have something to go back to in the event of a disaster.

While you work, save what you're doing to disk every 15 minutes or so. Keep additional backup copies of your material at the end of each period of work (at least). It's best to have a rota of backup disks. At the end of day one, for example, back up to a disk called "Backup 1." At the end of day two, back up to a new disk called "Backup 2." At the end of day three, go to "Backup 1" again. That way, there's always a copy of your work safe. If you only keep one backup, and your working copy gets corrupted, you may find that your only copy was made after the problem occurred. Or a power cut might strike while you're making the copy, and scramble both disks. Then you've got two corrupted copies and one big dose of frustration.

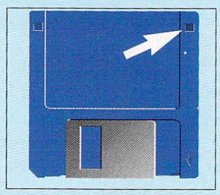
Some would even recommend a rota of three backups – grandfather, father, and son. That may sound over the top, but after your first tragedy – say, a month's programming effort down the drain – you may not think so.

HARD DRIVES

Wouldn't it be nice to have a disk so huge that you could keep all your most used programs on one disk and load them in a fraction of the time? You can do just that with a hard drive – an add-on box containing a non-flexible disk which rotates much faster than floppy disks. Hard drives are sealed units, so you can't swap disks as you can with floppies. They make up for that by holding much more. The smallest around are 20MBytes – that's about 28 double-sided floppies in one. They last longer than floppies, too, because the disk head doesn't touch the surface of the disk, but glides above it. Best of all, they read and write data far faster than floppies. Hard drives are so convenient that once you've used one you'll never want to go back. See page 96 for our best buys. But don't worry – almost all programs work perfectly well without one.

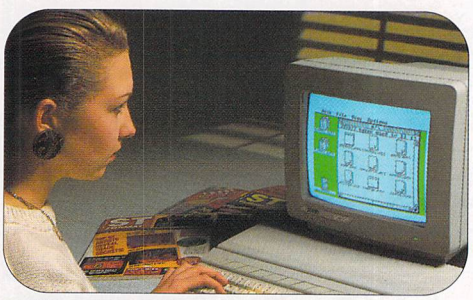
RAMDISKS

The last kind of disk isn't a disk at all. Sometimes it's handy to fool the ST into treating an area of RAM (memory) as if it were a disk. You can store files there, or run programs from it, and it works faster than a hard drive. The disadvantage is that it uses up valuable memory space and anything saved is lost when you switch off. But RAMdisks can still be handy, especially if you don't have a hard disk. To create a RAMdisk, you need to run a program designed for that. We've put one on this month's Cover Disk to help out. Check out page 32 for more details.



● Flick the write-protect tab for protection.

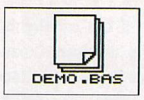
PROGRAMS AND FILES



● Different icons for different file types make it easy for you to work out what's going on.

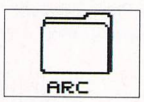
PROGRAM AND FILE ICONS





It's worth grasping the difference between two kinds of disk file. The first kind is a program file – a set of instructions which the ST can load and run, or set in operation to perform some activity, such as word processing. Program files have extensions of PRG, APP, TOS, or TTP, and you can run them by double-clicking on their icon. Program icons are like mini-Desktops, rectangles with a solid bar along the top. Data files, on the other hand, contain information for programs to use. In a word processor, the data files would be documents. Data icons are the ones with an upturned corner bottom right. You can't run data files – only display them, print them (by double-clicking on them) or load them into programs.

FOLDERS

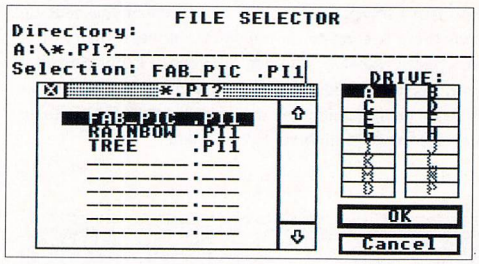


ST disks store information rather like a filing cabinet holds bits of paper. The disk is like a drawer in the cabinet. If the files are not in any folder, it is like having loose papers in the drawer – you can see them as soon as you ask the ST to look in the disk. It's tidier to have the files in folders – then, you see the name of the folder, but not the contents. You can have folders within folders as well, up to eight levels. To see what's in the folder, you ask the ST to open it up by double-clicking on it. Folder icons are the ones that look like office folders. Folders are also called Directories – the meaning is exactly the same.

THE FILESELECTOR

A familiar dialog box which turns up in all sorts of programs! The fileselector is an easy way of selecting files from disk. PC owners have to type long incomprehensible strings like `c:\docs\newwork\letter.doc;` but you just click with the mouse instead. First, click on the drive letter to choose the drive containing the file you want to load (or save). Then click on the filename, or type it in if it's a new one. If you need to go into a folder, click on the folder name to open it up. Click on OK to set it in action.

Use the Directory line to filter the filenames, so you only see the ones that interest you. * is a wildcard – it matches everything. So putting *.DOC in the Directory line shows all files ending .DOC. Click once in the listing itself to update it.



Older STs have a slightly different fileselector. Instead of clicking on drive buttons, you type the drive letter into the directory line.

THE TRASHCAN



Drag a file or program to the Trashcan to delete it. You get a warning first, unless you switched off the warning in "Set Preferences" (in the Options menu). If you do it by mistake, is there any hope of recovery? Maybe – see Common Problems on page 24.

FILE EXTENSIONS

You've probably noticed that most files on the ST have a name divided into parts. There's a name of up to eight characters and then a dot followed by a three letter "extension." This is a neat way of enabling both you and your ST to recognise what kind of file it is. For example:

- .APP as an alternative to .PRG – it stands for Application.
- .PRG for GEM programs, which use windows, menus, and the mouse.
- .TOS for non-GEM programs, like the well-known word processor *Protext*.
- .TTP for non-GEM programs which expect information to be provided before they run (TOS Takes Parameters).
- .ASC or .TXT for plain text files only.
- .BAS for programs in BASIC code.
- .DOC for word processor documents or plain text files.
- .IMG for picture files in IMG format. This is the standard GEM format, although it's normally only used for black and white images.
- .NEO for pictures in the low resolution *Neochrome* format.
- .PI? for picture files in the common *Degas* format. They're called that because the first program to use it was called *Degas*. The "?" can be 1, 2 or 3, for low, medium or high **resolution.**
- .PC? for files in *Degas* compressed format.

There are many others as well.

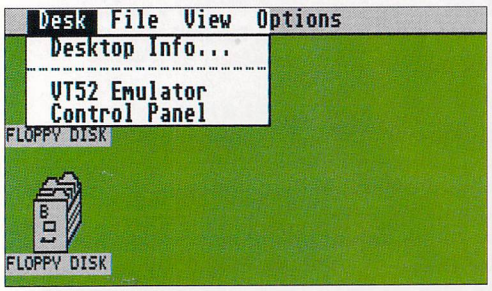
Another odd thing you see in filenames is the underline character. Filenames must not include a space, so you're limited to one word only. The underline character looks almost like a space, so it's used when you really wanted a name of two words – like NEW_DOC.ASC.

What's in a

All the choices available from the Desktop menu bar explained. Want to format a disk, change screen resolution, install an application or disk drive or just copy or delete a file? This is where you find out how to do it

THE DESK MENU

The first of the four Desktop menus is simply called "Desk." Most often, you use it to run Desktop Accessories.



DESKTOP INFO

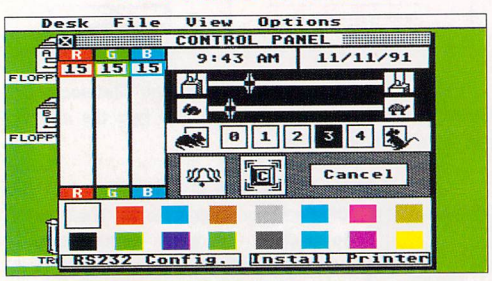
Choose Desktop Info and you get a copyright message. Pretty useless, you're thinking. Not totally, though, since the dates given can be useful in solving some software problems. The built-in software on the ST (called TOS – The Operating System) has changed slightly over the years, and some older programs don't run properly under some versions. The most important change was the arrival of TOS 1.4 (also known as Rainbow TOS, because the logo in Desktop Info developed rainbow colours). The STE came with TOS 1.6, and this was followed by TOS 1.62 which fixes the medium res bug – see Boot Up Bug on page 23. Coming soon is the improved TOS 2.0.

Want to know which TOS you've got? There are programs in the Public Domain which can tell you *(TOS Teller,* for example). Check the PD Directory on page 48 to find a PD library. But if it's a new ST, you have the latest version.

DESK ACCESSORIES

These handy little programs are loaded when you boot up and sit there waiting to be run when you need them, even when you're running another program. *VT52 Emulator* (shown above) is a bit specialist; it might help you transfer files from other computers if you get hold of a suitable cable. But the Control Panel is very useful.

CONTROL PANEL



Here's where you set a number of options to your own preference. Click on a colour box and adjust its colour using the slider bars. In low resolution, you have up to 16 colours; four in medium resolution; and in high resolution you choose between black on white... or white on black.

The ST knows the date and time – at least, it does if you tell it. Then all your files and programs are stamped with the date they are created or updated. To change the date and time, click on them and edit the numbers.

Other options control the keyboard response and how quick a click is a double-click. Click on "RS232 configuration" to set options – useful if you own a modem (modems connect computers together over the telephone). "Install printer" brings up another dialog box, for you to tell the ST the type of printer you have. It's not usually worth taking a lot of trouble over, since most programs use their own printer drivers – software specifically designed to work with particular printers – so programs often ignore these settings. But it does affect the Print Screen command. Older STs have a slightly different control panel, and, of course, fewer colours to choose from.

THE FILE MENU

This menu is for file management.

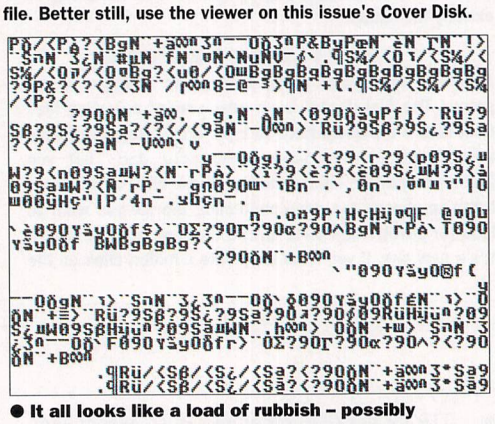


OPEN

If you have **selected** a file, this option activates it. Programs run; other files give you the Show – Print – Cancel dialog box. Like a double-click, but easier to use at first.

Showing a data file

What about Show – Print – Cancel? Most data files are only designed to be used within other programs, so showing or printing them from the Desktop is not very rewarding. If the file extender is ASC, TXT, or sometimes DOC, then you are able to read it or print it. If a file is called README, then always show it to the screen – it may contain important information about the program it comes with. Press Q if you want to return to the Desktop before the end of the file. Better still, use the viewer on this issue's Cover Disk.



● **It all looks like a load of rubbish – possibly because it is. Some data files contain spurious characters which don't make any sense when they're displayed on the screen.**

SHOW INFO

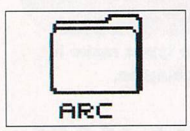
If you've selected a file, a folder or a disk icon, this gives you its vital statistics. It also gives you the opportunity to rename files. If you've selected a disk drive or folder, you are told how many files it contains, and how much space is free. Beware! The information about how many files, and how much space they take up, doesn't include files in folders. But the "bytes free" figure is reliable.

On recent STs and on the STE, you can rename folders as well as files. The technique is the same for both: click in the file name area, press <Esc> to clear the name, and type in a new one. Or edit the existing name using the cursor keys, <Delete> key, and so on.



● **Show Info gives you lots of useful information about your disk.**

NEW FOLDER



Makes a new folder on the disk. You are asked to give it a name. The folder is created within the currently active window. So, if the active window is showing the contents of a folder, the new folder will be inside the one that's showing. This way, you can nest folders one within another – handy to keep track of your files.

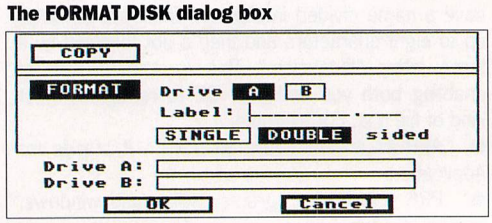
CLOSE AND CLOSE WINDOW

This gets confusing. Close closes a folder. If the window is on the top level of the disk, it closes the window. Close Window closes the active window, whether it is on the top level or not. And you won't use either of them, 'cos you'll use the mouse. Won't you?

FORMAT

This is only available if a disk drive is selected. Formatting a disk makes it useable, and also wipes out any existing files on the disk. You can choose between formatting as single-sided or double-sided. You can format double-sided disks as single-sided but not the other way round. You would normally want all your disks double-sided anyway.

The FORMAT DISK dialog box



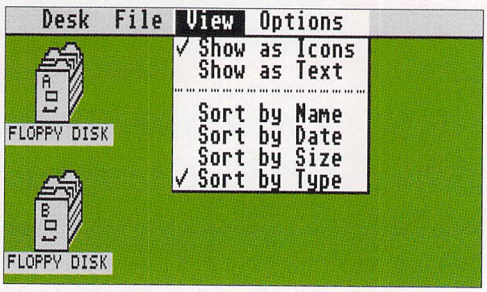
When the formatting is complete, don't forget to get rid of the dialog box with Cancel, and not OK. Otherwise, you start the format over again, which is boring!

menu

For a detailed explanation of all the jargon used, turn to page 135 now!

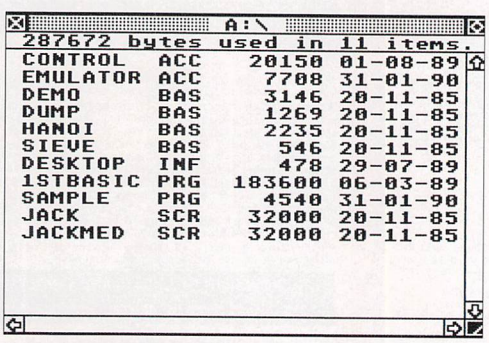
VIEW MENU

Here you can control how files and folders appear in the windows.



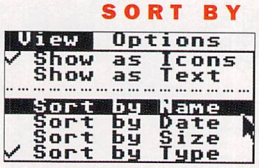
SHOW AS TEXT

Show as Text can be useful. Icons are attractive, but sometimes it's helpful to have the contents of a disk listed as text. Why? The text listing shows more information – like the date, time and size of the file. And it's a lot easier to run down a list than to scroll a window all over the place to find an icon. You can still select by clicking, double-clicking and dragging. If you really like icons, consider getting *Neodesk* (see page 24) which presents them that much better and offers some handy extra features as well.



● **Display your files in text form and you can then discover the file size and the date and time at which each file was last updated.**

SORT BY NAME...

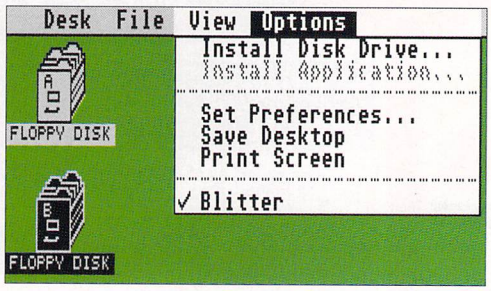


These options determine the order in which your files appear in the window. You'll soon find the type which is most useful to you, but generally alphabetical order (sort by name) is the one to go for because it makes it easy to know where you can find the file you need. Sort by type is useful when you want to see, for example, all the files with a DOC extender together.

Tip: Sort by size is a good way of getting the program files, which tend to be bigger than data files, at the top of the listing.

THE OPTIONS MENU

This is where you find all the options that didn't belong in any of the other menus!



INSTALL DISK DRIVE

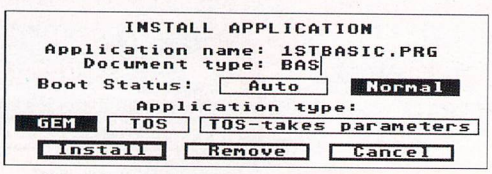
You get at the contents of a disk drive by simply clicking on the disk icon. But what if you have the disk but no icon? For example, you might install a RAMdisk or attach a hard drive. How do you access it? Here's where you add and remove icons from the Desktop – you can't, however, remove all the floppy disk icons.



● **Set up a new disk drive icon here – handy for running a RAMdisk like the one on the Cover Disk.**

INSTALL APPLICATION

"Application" is computer-speak for a program. Many programs enable you to load and save files – for example, a word processor loads and saves documents. Wouldn't it be handy if, instead of running the word processor and then loading the document, you could do it all in one go? Here's how you do it. Select a program, say 1STBASIC.PRG. Don't run it, just select it. You're going to configure it so that if you double-click on a file with an extender of .BAS, *1st Basic* loads and runs with your BASIC program loaded automatically. Now select Install Application. The following dialog box appears:



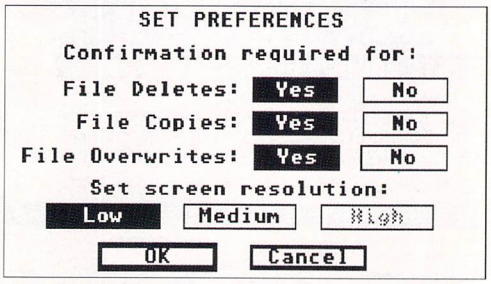
Where it says "Document type," type in BAS. Leave "Application type" on GEM, since *1st Basic* is a GEM program which uses the mouse. Click on Install. That's all there is to it. If you want the ST to remember the setup next time you switch on, do Save Desktop to your usual boot disk – it's explained on the right of this page.

SET PREFERENCES



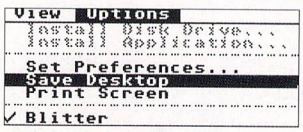
Do you want a warning when you copy or delete a file? Choose yes or no from the Set Preferences dialog box. Here's where you switch resolution as well. Resolution? The word "resolution" refers to the density of the dots which make up an image. On a printer, it's usually quoted in dots per inch, or dpi, but for monitors, the total horizontal and vertical dot count for the whole screen is normally given. The more dots, the sharper the picture.

The ST works in three resolutions. Low Resolution gives 320 x 200 dots – a little blocky, but with up to 16 colours included. Medium Resolution offers 640 x 200 dots – just about good enough for word processing or database work, but with only four colours available. (TVs can be used to display medium resolution screens but the display looks very fuzzy and is difficult to use for detailed work like word processing or desktop publishing.) High Resolution has an outstanding 640 x 400 dots, which is excellent for working with spreadsheets, word processors or desktop publishing, but the image is black and white only. The Atari mono monitor (see our monitor roundup on page 96) gives a perfectly crisp display and is ideal for detailed work. Not all resolutions are available on all monitors, and those not available are greyed-out. See the Monitor Matters panel on page 23 for more details.



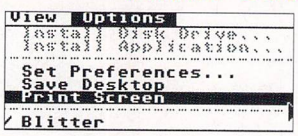
● **Set up your Desktop exactly as you want it, then preserve it forever by saving it to disk.**

SAVE DESKTOP



Once you've set up the Desktop and all its colours, icons and so on as you want them, you can get your ST to save these settings to disk. That's what Save Desktop does. It saves a file called DESKTOP.INF, which has to be on the top level of your boot disk to take effect. If you have several different boot disks, you can save a different Desktop file to each one. Perhaps you could have a disk containing a different Desktop for each of the three resolutions and then use different disks to boot with, depending on the program you want to use.

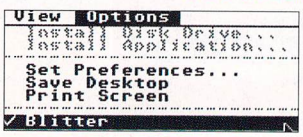
PRINT SCREEN



You're probably thinking, "I bet this one prints the screen." Well, it might do, if you've got an Epson-compatible 9-pin dot matrix printer, and if you've got the right settings in Install Printer. As a menu option it's not much help because you can't reach it from within other programs. The trick is to hit the <Alternate>-<Help> key combination, which has the same effect, even while other programs are running. But make sure the printer is connected and on-line first; otherwise your ST sulks for a half a minute while it tries to find it before eventually returning you to your program.

If Print Screen doesn't work with your printer, check out the Public Domain libraries (see our PD directory on page 48 – the SouthWest Software Library produce a range of printer drivers). They also have programs to save the screen to disk when you hit <Alternate>-<Help>, so you can load it into a graphics program and print from there, which is usually more flexible.

BLITTER



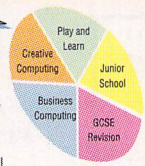
If you've got a Blitter chip (it speeds up text and graphics display and is standard on the STE), this switches it on and off. Why off? One or two older programs won't run with the Blitter active. Not many, though.

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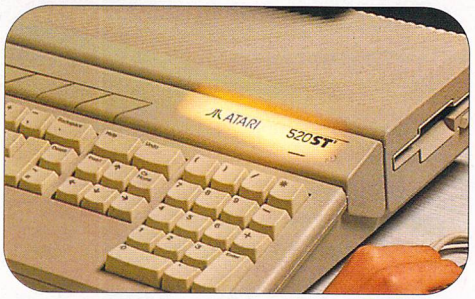
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ST OR STE?

The "E" in STE stands for Enhanced – it's an improved version of the ST which Atari brought out a couple of years ago, although the older version was still on sale alongside the new until quite recently. Which one have you got, and what's the difference?

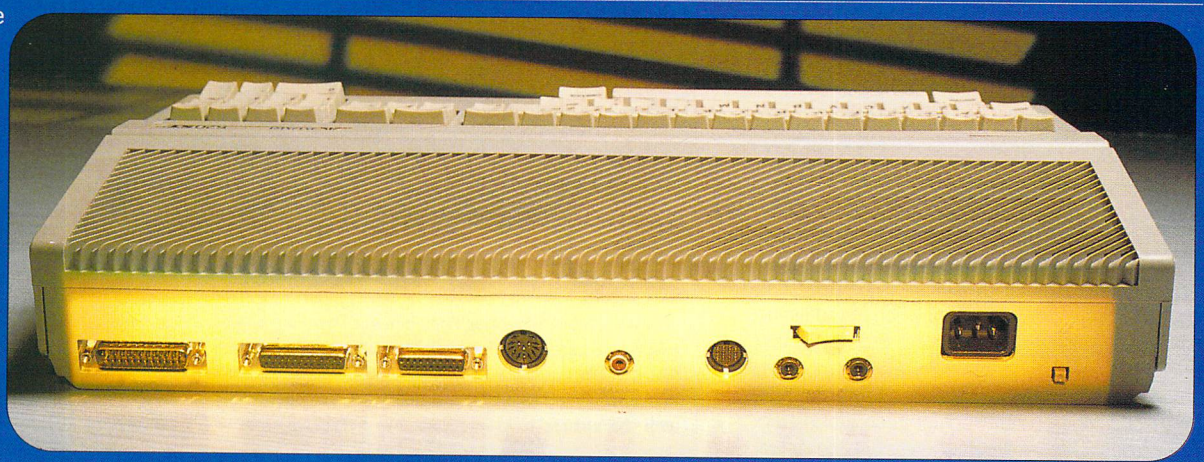
- The STE has two additional 15-pin joystick ports, located on the left hand side below the keyboard, and two additional phono sockets for plugging the ST into a stereo system. These are on the back under the power switch.
- The STE gives you more colours to choose from – 4,096, to be precise. But the number you can display at once remains the same – see **Set Preferences** on page 22.
- The STE has improved sound capability. Sadly, many games don't use this extra quality for the sake of compatibility with the older STFM.
- A **Blitter** chip comes as standard in the STE. This is an additional integrated circuit which speeds up the screen display – use the **Options menu** (see page 22) to turn it on and off.
- There are a number of smaller changes to the way the system operates. Some things work a little differently on the STE, and in those cases we've explained precisely how both systems work.



● Games and sound packages are making increasing use of the enhanced features of the STE.

PORTS AND PERIPHERALS

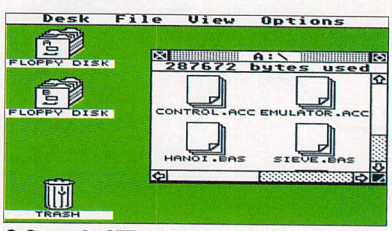
To communicate with the outside world, STs have sockets on them, into which you can plug things like printers, monitors or additional disk drives. These sockets are often known as ports. And the things you plug into them are known as peripherals, because they're controlled by the ST.



● The back of the ST is bursting with potential. Turn to page 96 for more details on the hardware you can plug in.

BOOT UP BUG?

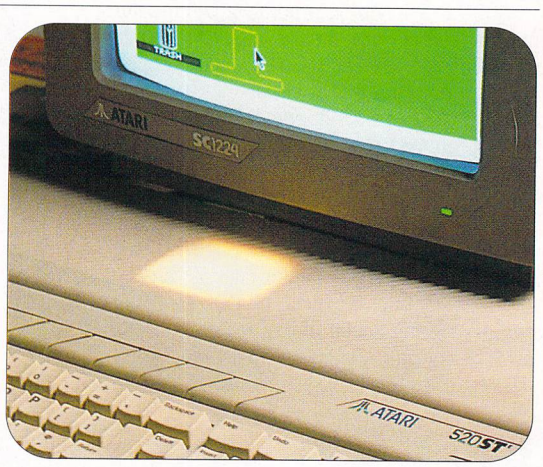
Early STEs suffered from a curious fault in TOS. If you save the Desktop in **medium res** and then **reboot,** the system pops you back into **low res.** There are little programs around in the Public Domain to fix this – see the directory on page 48.



● On early STEs there was no way to stop your ST from booting up in low resolution unless you obtained a PD patch. That was solved with the release of TOS 1.62.

RAM AND ROM

The ST, like other micros, has two kinds of memory. Some data is held in Read-Only Memory (ROM), so that it can never be deleted and remains intact even when the ST is turned off. For example, the GEM Desktop is a program which is stored in ROM. Other memory, called Random Access Memory (RAM), only stores data while the ST is switched on. When you load a program, you are moving data from disk into RAM. And when you're using the ST, what you're working on – whether it's a game, a document, or a picture – is stored in RAM. Don't forget to save it all to disk if you want to preserve it, before switching your ST off.



● Under here are all the important bits and pieces which make your ST motor – on page 110 we rip the lid off the STE and explain what goes on under this cover.

MONITOR MATTERS

There are four kinds of monitor for you to consider. The cheapest option is simply to plug the ST into a television. It works fine, though you may find it hard on the eyes if you try doing word processing or other detailed work on a TV. You can use **low** or **medium resolution** only.

Most people using TVs use the cable supplied, which plugs into the aerial socket. The signal is modulated by the ST, so that the TV treats it as if it were an ordinary broadcast signal. If your TV has a SCART or RGB socket, it may be possible to bypass the modulation process and get better quality. Then you would need a cable to fit the ST's monitor socket at one end and the TV's SCART socket at the other. Consult your dealer about getting the correct cable – it's worth it.

Better still is to get a dedicated monitor. The quality of the picture is far superior. A colour monitor, like a television, gives you a choice of **low** or **medium** resolution. The display is far clearer than that of a TV, making it possible to do detailed work without straining your eyes badly. If you choose a monochrome monitor, most people go for Atari's own SM124, reviewed on page 96, which works in high resolution only. It gives an excellent, stable display at a very reasonable price (£110 can't be bad!). The anti-glare screen makes it easier than ever to concentrate on the display. For serious computing, it's hard to beat.

Want to use all three resolutions? High res users can still use the TV option for games – but better still is to get a multi-sync monitor, which overcomes the limitations by offering all three resolutions. The price is high, though (typically £800), and you need a special cable – check carefully with the dealer before parting with any money. And you'd still be well-advised to turn the ST off while switching to or from high resolution.

IT DON'T WORK...

What about the dreaded moment when it all goes dead? STs are highly complex machines, so any number of things can go wrong – the amazing thing is that they usually work so reliably. Here are a few tips about some common problems.



1 Does the power light (bottom left of the keyboard) come on? If not, you may have a failed power supply... or you may have forgotten to turn it on at the mains.



2 Have you checked all the connections? Turn everything off, unplug everything, and carefully reattach all the cables, pushing them in gently but firmly. Remove any peripherals – hard drive, printer, and so on, – while you check the basic system. Then switch on again.



3 Mouse playing up? Try cleaning it – unclip the panel on the underside of the mouse, take out the rubber ball, and clean out the dust from the small silver rollers.

GDOS

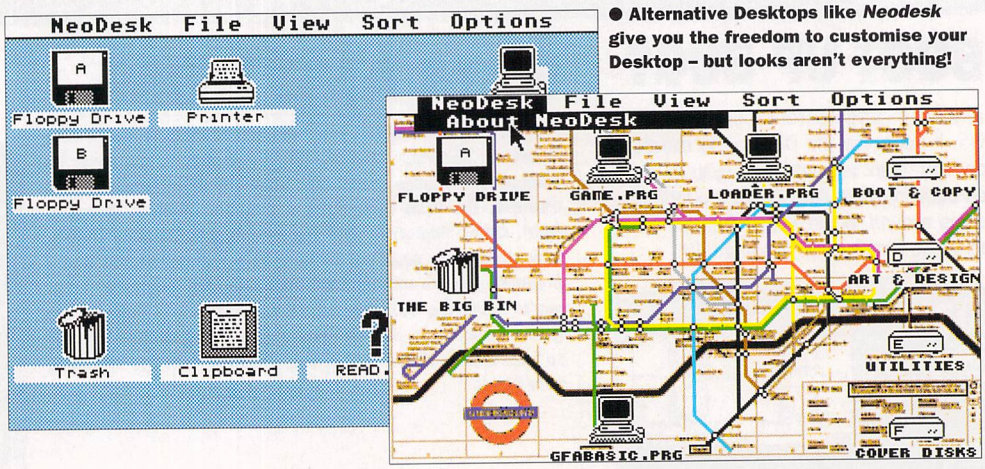
Yes, well, it stands for Graphics Device Operating System. It's a pig to set up but when it's humming you can get excellent graphics and fancy text printouts from it.

Word processors usually print using the printer's "text mode" – the printer receives instructions to print a certain character, but the actual design of the character is stored in the printer's **ROM.** In "graphics mode," the characters are sent dot-by-dot to the printer – much slower, but far more flexible.

GDOS is a way of incorporating lots of different fonts which are then printed in graphics mode. It's a format used by many popular publishing and drawing programs on the ST – for example, *Degas Elite* and *Timeworks DTP*. For more on these programs, see our software roundup on page 40. Fonts in GDOS (or GEM) format are handy, because many different programs can use them. They are very easy to get hold of because many Public Domain libraries (see page 48) stock them – either selling common ones or creating their own. Making the best of GDOS, though, goes beyond the scope of this feature – though we will be covering it in detail in a future issue.

ALTERNATIVE DESKTOPS

If you think your ST Desktop is pretty neat, you'll be amazed at what other Desktops can do. There are one or two replacement Desktops bristling with extra features. Fancy a picture for a backdrop, instead of dull green? And how about special icons for your main programs, with the chance to create your own individual icons as well? The best is *Neodesk 3* (£39.95 from Electric Distribution ☎ 0480 496666) – see page 40 for our review – which does all that and more. *DC Desktop* (*STF:* 71%) is a bit cheaper (DC Software ☎ 0747 51953), and *Gemini* is Public Domain (see page 45). Worth thinking about, once you've got familiar with the basics of using the ST.



● **Alternative Desktops like *Neodesk* give you the freedom to customise your Desktop – but looks aren't everything!**

TEN COMMON PROBLEMS

1 **Why can't I use the Set Preferences option to obtain all resolutions?**
Because it depends which monitor you have. See Set Preferences on page 21.

2 **When I double-click on a document file and choose Print from the dialog box, I get strange characters in the printout. Why?**
If you create a document in a word processor, you have to print it from within the word processor. Otherwise, the hidden formatting codes in the document are printed out as characters. The only files worth printing from the Desktop are plain text files, like the ones called README that come with some programs.

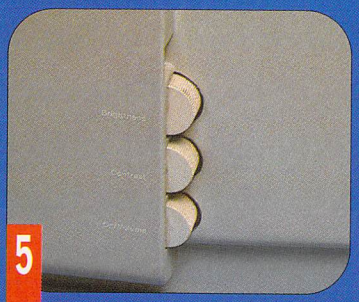
3 **I chose "Show" for a file on the Desktop but only half the text showed on the screen, and part of it shot off the top of the screen before I could read it.**
Always "show" files in medium resolution. Otherwise, you may not be able to get all the text on screen.

4 **I bought a monochrome monitor with my STE. But the games that came with it don't run. Why can't I play them in black and white?**
Most games don't run in high resolution. You could always plug the ST into a TV for the odd game playing occasion. If you bought your ST for games, then you've got the wrong monitor – take it back. Games are available for mono monitors – see our roundup in STF 30. (Turn to page 142 if you missed it.)

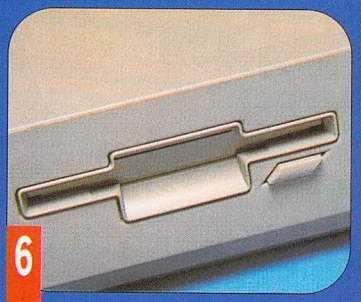
5 **I tried to copy a disk by dragging the Disk A icon over the Disk B icon, but got a message saying "The destination disk is not the same type as the source disk." What's wrong? How can I copy the disk?**
The Disk copying routine (dragging one disk icon over another) only works when the two disks are formatted to the same size. To copy a single-sided disk to a double-sided disk, for instance, you can't drag one icon over another – you need to copy files individually instead. Open the window for the blank disk, and drag the icon for the source disk into the window. All files are copied one by one. Alternatively get a good copying program like Fastcopy 3 from a PD library (see page 48). File-by-file copying is needed to back up STF's Cover Disk (see page 30).



4 Does the ST start to access the disk drive soon after you turn it on (the drive light above the number keypad comes on; the drive whirrs)? If so, the ST itself is mostly working, since it goes through a self-testing routine before it gets to that stage.



5 Don't forget the monitor has its own on/off, brightness and volume switches.



6 There could be a problem with the disk you're using to boot from. Try a cold boot – switch off, wait a minute, and switch on without a disk in the drive.



7 Still not working? Contact your dealer or ST technician. Before you ring, note which ST(E) model you have, how old it is, any other equipment you're using, and the dates which appear when you select "Desktop Info" from the Desk menu. In fact, you'd better make a note of the dates now, before anything goes wrong...

CRASH...

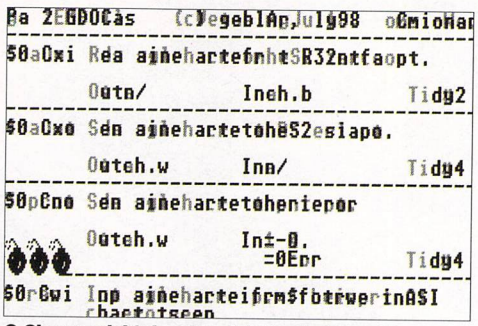
You're tapping away on the keyboard, everything's going fine. Suddenly, you notice the screen go dead and nothing you type seems to have any effect. You move the mouse, but the pointer just won't budge. Or maybe a row of little bombs has appeared on-screen, or some bizarre message like "address error" or "illegal instruction." What's gone wrong?

The ST may be compact, but it's an immensely complex piece of hardware. And software is highly intricate as well. One wrong number in one bit of the program and the whole system may come crashing down. Maybe some part of the ST's brain is caught in an infinite loop or maybe some essential operating information in RAM has been deleted. The result is system failure.

The good news is that there's probably nothing wrong with your ST. The bad news is that often the only way out is to reboot – and that means wiping out whatever was in the ST's memory. You did remember to save your work to disk every 15 minutes, didn't you? Usually, you can reboot without having to switch off – just press <Control>-<Alternate>-<Delete> on the STE, or press the reset button on any ST. Just occasionally, the crash is so severe that only the on-off switch will do. When you switch off, wait a minute before switching on again, because otherwise there may be unwanted information which is not cleared properly from RAM.

And what about the bombs? The number of bombs gives information about what kind of system error has occurred. The idea is, the more bombs there are, the more severe the crash. You need to learn about programming to make sense of these error messages.

Use reliable software and you won't get many crashes. The dodgiest software is at one of two extremes: Public Domain software which could do anything really, and the most complex commercial software, like Desktop Publishing programs, which sometimes fall over because of their sheer complexity.



● **Shome mishtake shurely? Cursing should soon become a Pavlovian response to seeing bombs.**

INFECTION?

How can your ST be infected? It's a good way to describe what happens when a virus gets into the system. Viruses are hidden programs which automatically load themselves without you realising it. They sit in memory and copy themselves to any disks you put in the drive. And they may have malicious "special features," like causing your system to crash, or wiping out all your files. Bad news city. But remember, a virus is just a program and can't damage the ST itself. It sits in RAM and is cleaned out when the ST is turned off. And it can't get into the system unless you boot up from an infected disk. If you suspect a virus, turn the ST off, wait one minute and reboot from a disk you know to be clean or without a disk in drive A. Then, get the most up-to-date virus killer program from a PD library (see page 48). This enables you to check suspect disks and erase any viruses that might be present. Viruses cannot copy themselves onto disks which you have **write-protected.**

Warning: don't check commercial game disks for viruses! Because of their weird copy-protection and auto-start features, game disks often fool virus killers into thinking there's a virus there – but if you try to "kill" the virus, you ruin the game disk.

6 I know taking backups is important, but I only have one disk drive and this disk swapping is driving me wild! There must be a better way.

There is. Use QuickDisk *(on this issue's Cover Disk) to make a RAMdisk, copy the source disk into the RAMdisk and then copy out of the RAMdisk onto a blank disk. If you have a 520ST, you might need to do it in two stages. Remember also that Disk copy usually needs fewer disk swaps than a file copy.*

7 I've tried doing Print Screen but all I get is rubbish.

The Print Screen command only works on 9-pin printers, and some 9-pins may be incompatible. It might be possible to get a program for the AUTO folder which fixes the problem – ask a good Public Domain library (see page 48). You need one designed for your particular printer. Alternatively, don't bother with Print Screen – it's better to print graphics from within an art program or Desktop Publishing program in any case. Degas Elite *would do nicely – see page 106.*

8 I've got a window on-screen showing the contents of drive A. I changed the disk, but the window still shows the old disk.

Press <Esc> and the window is updated. Very occasionally, some STs still refuse to read the new disk. If so, temporarily switch the write-protect tab to open, and that forces a directory update. Don't ask why!

9 Help! I worked all night on a picture, and I was so tired that I formatted the disk it was on by mistake.

Yup, that was a mistake all right. First check to see if there's a BAK file on the disk – some programs keep these automatically. When you save a new version of your work, the old one is renamed with a BAK extension. If not, there is still hope: there are special programs that might recover it – see Utilities on page 42. The first thing you should do is write-protect the disk, then take a copy. Now use the appropriate software to recover the file from the copy. It doesn't always work. If you just deleted a file, without reformatting, there's more chance of success.

10 My brand new disk won't format!

Check that the write-protect tab is closed. If it is, it's probably a dud disk. See the dealer and replace it.

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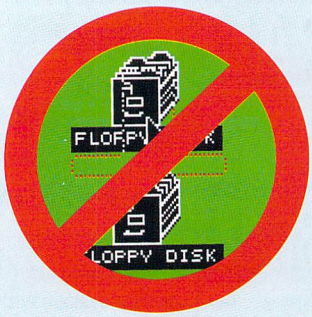
* **All prices include VAT and fast delivery**
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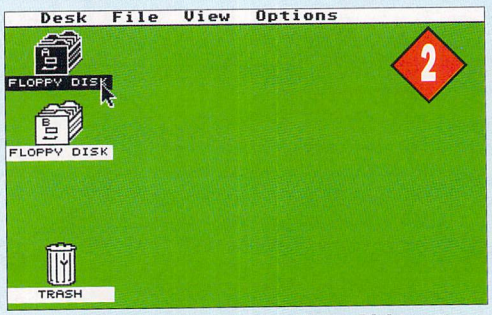


Keep it safe!

The programs on the *STF* Cover Disk are yours forever – providing they never get damaged. Avoid disaster by taking a perfect copy – now!

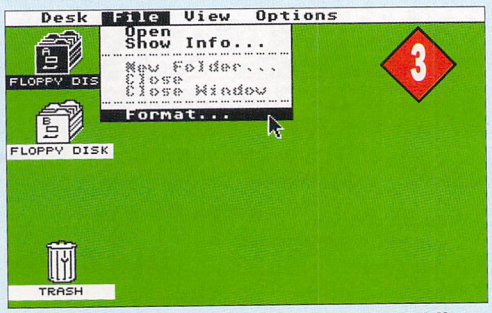


● Before you try it – you can't use the ST's normal "A to B" copy function to back up your Cover Disk. This method (where you drag one Floppy Disk icon onto another) misses the extra data which is squeezed onto your Cover Disk.

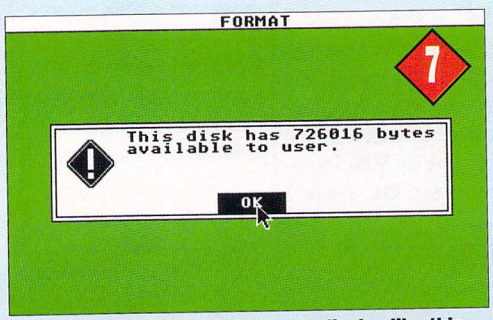


● Get a spare disk to store your Cover Disk programs on and pop it into your ST's drive slot. Make sure it's either already blank or one that doesn't contain anything you want to keep. Why? Because you're going to clear it completely, using the Format operation.

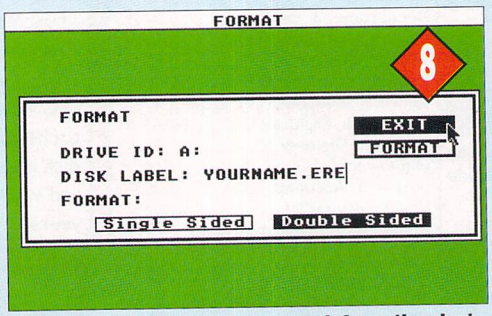
Before you pop it into the drive, make sure it's write-enabled – close the small black tab in the corner of the disk, so you can't see through the hole. Insert the disk and then highlight the Drive A icon by clicking on it once with the left mouse button.



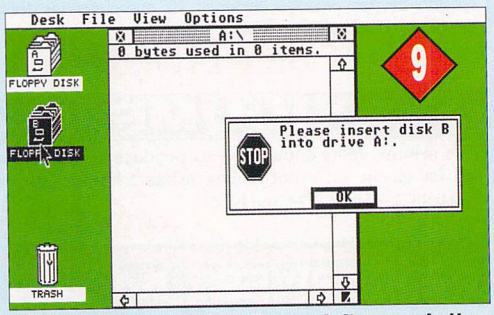
● Next, move the mouse up to the menu bar at the top of the screen, where it says File. A menu appears with a highlight over the word you're pointing at. Move the pointer down to Format and click the left mouse button again.



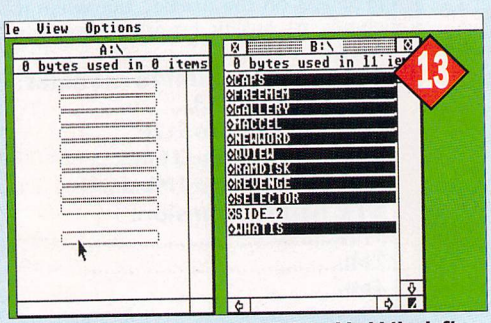
● A successful format brings up a display like this. For a standard ST double-sided disk, this is the normal free space. You can improve on this figure – check out Desktop (see page 119) to find out how. For single-sided disks, the figure is roughly half.



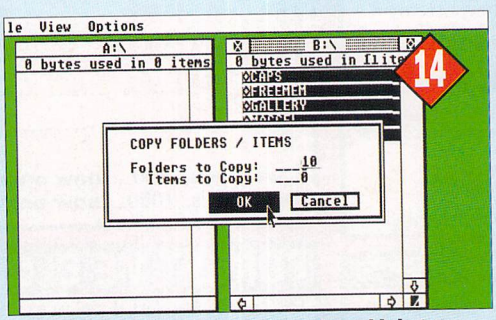
● Once you've read the free-space information, just press <Return> or click on the OK box to get back to the Format display again. You can format another disk from here or you can just return to the Desktop by clicking on Exit. You're going to need more than one blank disk, so you can format the second one now or when you need it later.



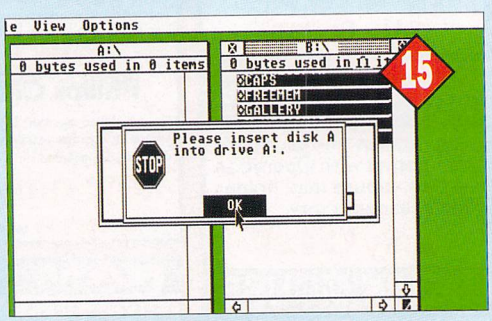
● At the Desktop, double-click the left mouse button on Drive A to open up a window showing the disk's contents. It should be empty because you just formatted it. You can reposition or re-size the window by dragging the small marker at the bottom right-hand corner. To open up another window for your Cover Disk files, double-click on Drive B. Your ST responds by asking you to insert a disk. Just pop out the blank one and put in your Cover Disk. Make sure your Cover Disk is write-protected (the hole in the corner should be open) to prevent any mishaps.



● When your list is correct, click and hold the left mouse button on any one of the highlighted entries. A ghost-image of the highlighted boxes is attached to the cursor. Keeping the button held down, move the block of ghost-boxes over to the window for Drive A. When they are directly over the window, release the button.



● Your ST now kicks into copy mode and brings up this confirmation dialog box. Clicking on Cancel stops the entire copy operation, while clicking on the OK box makes the ST go through its final disk checks before copying the files.



● This is where the fun really starts. Because your ST has only one drive fitted as standard, it uses it for both Drive A and Drive B. It prompts you to swap the disks around each time it reads and writes.

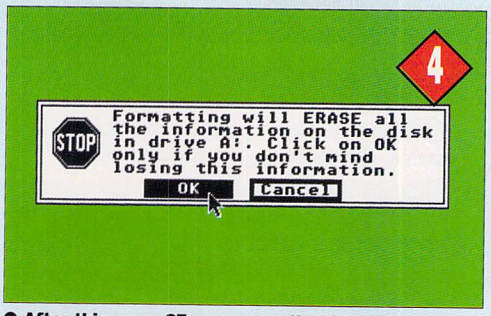
It's up to you to remember which is which, or your ST gets confused. If you've followed everything so far, the Cover Disk is Disk B and the blank disk is Disk A. When the appropriate disk is inserted, tell your ST by clicking on OK.

If you're a regular *ST FORMAT* reader, you might be able to spend these two pages patting yourself on the back, saying "I know this already" and remembering the fun (?) you had backing up your first Cover Disk.

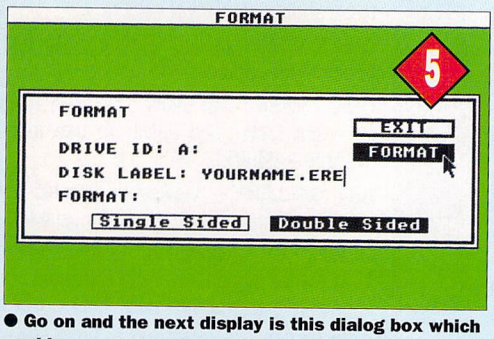
But if you're new to *ST FORMAT* and your ST or STE, these pages are your guide to looking after your copy of the Cover Disk. You may know how to copy a disk already, but have a read anyway. Your *STF* Cover Disk is slightly different from ST disks you'd make yourself – and it needs special care to make sure you copy everything intact.

We use a special disk-formatting program to squeeze an extra 40K onto the Cover Disk. This can be read perfectly by all STs and is virtually invisible to you, the user. However, the ST's standard disk-copy function (dragging the Drive A icon onto the Drive B icon) cannot "see" the extra data and consequently it doesn't copy it properly. To make an accurate backup, you have to use the slower file-copy function described below.

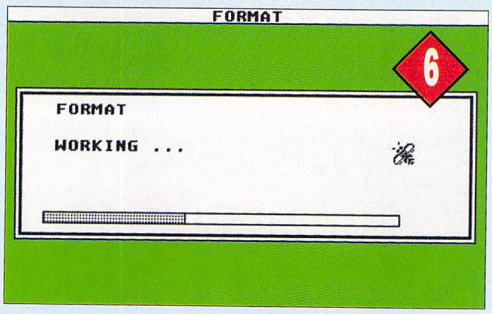
You need one or two spare disks on which to store your Cover Disk data. Before you start, make sure that the spare disks are write-enabled (close the notch on the disk so you can't see through the hole) and your original Cover Disk is write-protected (with the disk-notch open).



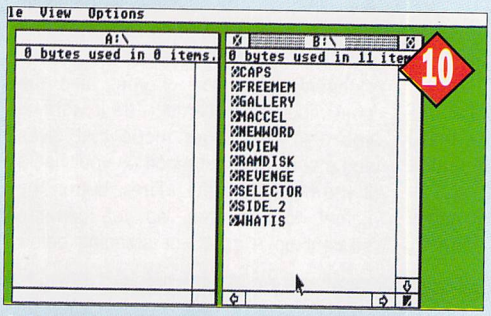
● After this, your ST warns you that it's going to wipe the disk in the drive. If you want to wimp out, do it now.



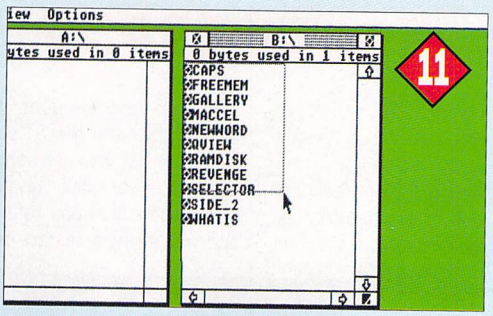
● Go on and the next display is this dialog box which enables you to choose the type of disk you make. Type in a name for it, if you wish. This name can be read later, using the Show Info command in the File menu. Click on Double Sided so the whole disk is formatted (only really old STs have single sided drives). Click on Format to start clearing the disk.



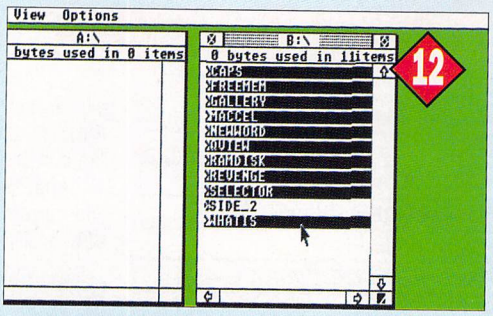
● Your ST keeps you informed of its progress with this display. The horizontal bar constantly shows how much of the disk is formatted.



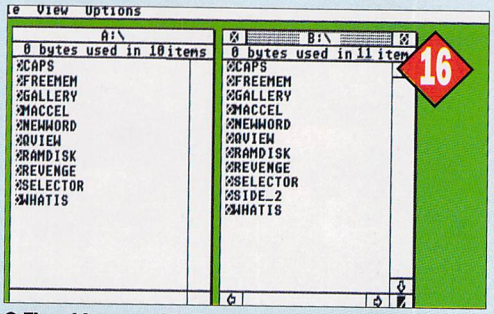
● Press <Return> when the Cover Disk is safely in the drive. After a bit of whirring, the window for Drive B appears. You should see the Cover Disk files either as icons or as text like the list above. To display files as text, use the Show as Text option stashed away in the Desktop's View menu at the top of the screen.



● Now you need to select the first batch of files to be copied from your Cover Disk. Use the mouse to point at the top left-hand corner of the list and then hold down the left button. Keep the button held while you drag a "rubber band" box around all the folder names *above* the one called SIDE_2. Let go of the button when you reach the position above.

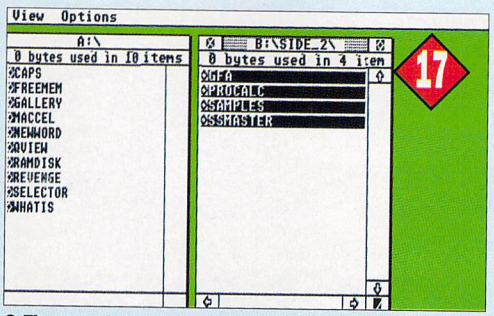


● When you release the button, the files should be highlighted like those above. To select the WHATIS file, or if you've inadvertently selected the SIDE_2 folder, hold down the <Shift> key and click on the appropriate name to add it to or remove it from the highlighted list.



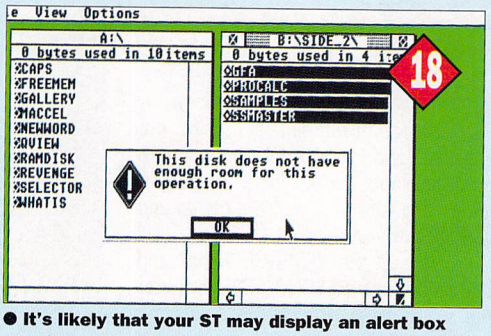
● The older your ST, the more disk-swapping you have to do. The newer STEs have an improved operating system, and they generally only need about three or four disk swaps to get the data across. On very early STs it's a time-consuming process, but it's worth it to protect your Cover Disk.

When all the disk-swapping finishes, you should see a new list in the Drive A window. This means the first half of the data is safely copied.



● The remaining data is copied in the same way, but you've got to find it first. Just double-click on the SIDE_2 folder and the B window updates, showing the remaining files.

Repeat the processes in 11, 12, 13, 14 and 15 to select the remaining files and copy them to Drive A. There's a bit more disk-swapping before the files are safely across.



● It's likely that your ST may display an alert box warning you that you've run out of room on Drive A. If this happens, you need to insert your second blank disk (or format another spare disk, if you haven't already done so) and repeat the copy process using exactly the same procedure, but selecting just the missing files which didn't get copied. Once all your files are safely copied, you can move on to the remaining Cover Disk Info pages to find out how to use your new programs.



It's so full! Chris Lloyd spills the beans on this month's Cover Disk

ON THE DISK THIS MONTH

SIDE 1

REVENGE OF THE MUTANT CAMELS – *Exclusive! Complete!* Riotous colours, frenzied blasting and some frankly weird aliens. It has to be another Jeff Minter game.

QUICK VIEW – Makes reading those text files an absolute doddle.

QUICK DISK – An extra disk drive from thin air – but faster and easier to use than your average RAMdisk.

ART GALLERY – View your graphic masterpieces in three formats from the Desktop.

NEWWORD – Complete text editor – and guess what? It's a Desk Accessory, so you can access it even when running other programs.

SELECTOR – Enables you to choose at boot-up which Desk Accessories you want loaded.

FREE SPACE – Find out exactly how much memory you've got.

CAPS – Instant indicator of caps status.

MOUSE ACCELERATOR – A rocket-powered mouse can be yours.

WHAT IS – What's that file? This can tell you.

SIDE 2

SOUND MASTER – Preview of the latest st-st-stereo sampler package from Microdeal.

SEQUENCER ONE SAMPLES – Ten sounds for last month's sequencer that could win you some serious musical kit.

PROCALC – Fully-featured scientific and programming calculator.

GFA LISTING – Accompanying our programming clinic, this month it's all about menus.

Revenge of the Mutant Camels

BY: JEFF MINTER
SIDE: 1
MACHINE: ALL STS
RESOLUTION: LOW RES ONLY
FOLDER: REVENGE
FILES: REVENGE.TOS, README.DOC
READ: README.DOC
GET STARTED WITH: REVENGE.TOS

You're being attacked by telephone boxes, walking sticks, computer chips and exploding sheep. That'll teach you to eat cheese before bed! Luckily, you brought your goat along with you. It can only be another masterpiece from Jeff Minter, programmer of truly original games (like *Llamatron*, which was yours on Cover Disk 24 – if you missed it, you missed a classic! Turn to page 142 for the *FORMAT* back issue service).

Revenge of the Mutant Camels is a strange and wonderful horizontally-scrolling shoot-'em-up with a few differences. For starters, you're a camel and your best friend's a goat.

Open up the REVENGE folder and double-click on REVENGE.TOS to enter the weird zone. Press <Fire> to get past the title screen and you're treated to a demo of the first 20 levels. Pressing <Fire> again brings up the main option screen. Resume Attract mode sends you back to the demo and More Options gives you the opportunity to view the high scrores, select the intensity of the strobe effects and switch from 50 to 60Hz. This is the speed of the screen display. Don't switch to 60Hz if you're using a telly 'cos it won't like it at all.

After choosing to play *Revenge*, you can go for one or two players, or CPU assist. Player one gets the camel and player two the goat. (Plug the second joystick into the ST's mouse port.) In CPU assist your ST controls the goat for you. Every five levels there's an oasis where you can refuel your camel and get given a restart code. Remember these codes – you can use them with the restart option to zap straight to that level.

Everything is joystick controlled. Your beasties spit bullets continually in the direction the joystick is pointing. Move it up and you jump, down and he sits. If the camel sits when the goat is alongside or ahead of you, then the goat mounts the camel – as it were. If you're in one player mode that gives you a sort of goat-cannon on your back. If you hold down the <Fire> button the camel doesn't jump, so you can fire straight up – great for standing below

CAMEL FOOD

Give the wacky nasties a good bashing and down float all sorts of goodies. Get hit and all sorts of nasties float down. Who said life wasn't fair?



WHAT YOU NEED TO KNOW BEFORE YOU BEGIN

Stop! To protect your precious Cover Disk, write-protect it and back it up now!

Just follow the step-by-step guide on pages 30-31

Write-protect your Disk

You don't want anything untoward to happen to your Disk, do you? The best thing to do is write-protect it at once. This'll prevent anything being written to the disk, so there's no chance of mishaps. Simply move the little black tab so you can see through the hole. Stops viruses too. Viruses are nasty little programs that can copy themselves onto unprotected disks and then corrupt data or generally make nuisances of themselves. The Cover Disk is guaranteed virus-free, so don't take any chances...

Read Me!

Space on the Cover Disk pages is limited, so you'll often find text files on the disk with more information. These use the file extension – the three letters after the full-stop – .DOC. It's always worth reading these for more information on the program before you try to use it. Just double-click on them and select Show to display the text on-screen – or even better, use *QuickView*, which is on this very Cover Disk!

Back Me Up!

To keep your prized Cover Disk safe you should back up the disk, so if anything should go horribly wrong you've still got the original. The procedure is explained in step-by-step detail on pages 30-31. It's not difficult, and it is worth doing to protect your Cover Disk. Do it before you do anything else – it beats being sorry later!

Still single?

ST FORMAT uses a rather clever disk format, created by the very creative Rob Northen, which can be used by both single and double-sided drives. If you have no problem with other folders on the Disk but when you try to open the SIDE_2 folder your ST grumbles about damaged data, then you've got a single-sided drive. These were fitted to early 520 STs and are rapidly becoming obsolete. Replacement drives are cheap and easy to fit. Time to upgrade, perhaps?

things and giving them a good pasting.

Make a backup copy using the directions on pages 30-31 this issue, leave the write-protect off and *Revenge* saves the high score table for you. Don't run *Revenge* from the Cover Disk with the write-protect off or you might muck up the Disk!

Revenge is Shareware – that is, it can be distributed freely, but if you have a groovy time with it the programmer asks you to make a fiver donation to his old age. As with Jeff MInter's other Shareware masterpiece, *Llamatron*, you get a little something for being such a fine upstanding citizen and registering your copy. There are special STE, 1MByte and even TT versions of *Revenge* with jazzier effects, smoother scrolling, more colours and even more noise, and if you register you can choose between these or copies of *Llamatron*, *Colourspace* or *Gridrunner*. What's more, you get a rather flash poster, too. Shareware authors like Jeff depend on users of their programs doing the honest thing. The more people that do, the more chance of more goodies in the future – you know it makes sense.

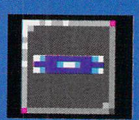


● It's all gone horribly wrong! Death at the nasty end of the mutant camels. Each wave of attackers takes different tactics and presents its own problems for you to solve... or fail to solve.

THE GOOD NEWS



Weapon power-up – adds one level of extra punch to your weapon. Doesn't last forever, though.



The laser – does a lot of damage but only fires left and right – a swine in the wrong situation.



Round bullets – you start the game with this weapon. Can fire in all directions.



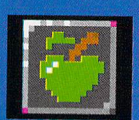
Oval sinewave bullets – can't fire directly left or right, but do heaps of damage and aren't stopped by enemies.



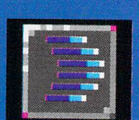
Smart bomb – enemies on the screen take a bit of a bashing.



Halo – turns you invincible for about 20 seconds. Dead handy.



Apple – repairs a bit of damage to your shield. 12 apples = a full shield



Comb bullets – when powered-up produce a speading swathe of shots.



Trainer – doubles the scroll speed – handy on tricky levels.



Camel – an extra life. Quick, grab it! Er, try not to die in the process, though.



Very smart bomb – enemies on the screen take even more of a bashing.

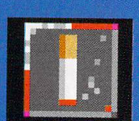


Warp – zooms you straight to the next level.

THE BAD NEWS



Weapon power-down – lose one level of weapon power.



Ciggie – everything slows down until you've smoked it. Sometimes handy if you want to stay in the air longer.



Confuzer – little green question-marks appear above your head and things get, er, confusing. If you're on your own, then the controls are reversed: left becomes right and right sends you straight into a nasty you wanted to avoid. With two players the Confuzer reverses control of the camel and beastie..



Skull-death – no questions asked. You're dead, matey. One to avoid?

Sequencer One samples

BY: GAJITS MUSIC SOFTWARE
SIDE: 2
MACHINE: ALL STS
FOLDER: SAMPLES
FILES: READ_ME.DOC PLUS TEN IFF SAMPLES
READ: READ_ME.DOC
TO GET STARTED: SEE BELOW

Where were you last month? If you weren't here you missed out on a complete special version of Gajits' *Sequencer One* program – a rather spiffy package that turns your ST into a powerful music tool. Don't despair if you missed it: the *FORMAT* back issue service is on page 142.

Our specially written version had all the features of the original but could also handle samples as well as MIDI. MIDI stands for Musical Instrument Digital Interface – it's a way of connecting your ST to a synthesizer or other MIDI-compatible instrument. Samples are sounds converted into digital data that your ST can use. Gajits produce disks full of the beasts, and this issue they're giving you ten juicy ones to go with the sequencer. The special "Get You Started" supplement free with last issue explains how to use them. That's not all, though – they could win you over £500 worth of top-quality music kit from Roland! Turn to page 144 at once!

GFA listing

BY: BARRIE CAPEL
SIDE: 2
MACHINE: ALL STS
RESOLUTION: ALL RESOLUTIONS
FOLDER: GFA
FILES: GFAMENU.LST
TO GET STARTED: merge file into *GFA Basic* (not on this Disk)

Inside the GFA folder there's a rather niffty little listing to go with this month's GFA Programmers' surgery – see Desktop, page 119. It shows you how to set up those rather sexy GEM menus, like the one on your ST's Desktop. You need a copy of *GFA Basic* to load it into, though – the complete *GFA Basic 2* package was yours free on Cover Disk 19, so if you haven't got it yet you can turn to page 142 to order that issue. But do it now – that issue won't be offered again!



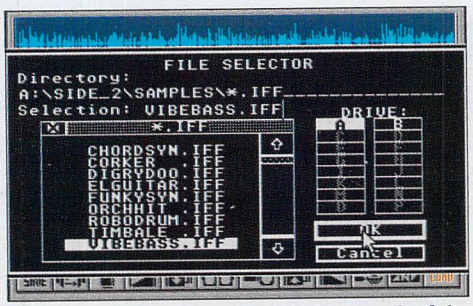


Stereo master

BY: MICRODEAL
SIDE: 2
MACHINE: ALL STS
RESOLUTION: LOW RES ONLY
FOLDER: SSMASTER
FILES: SM_DEMO.PRG, DEMOKEYS.SET
GET STARTED WITH: SM_DEMO.PRG

Stereo Master is the new sampling/playback package from Microdeal which enables you to record stereo samples even without an STE's stereo capability. (Obviously you can only play them back in true stereo with an STE or with the Microdeal Playback cartridge – £29.95 from Microdeal ☎ 0726 68020.)

To load this Cover Disk preview, make sure you're in low resolution and double-click on SM_DEMO.PRG. This is a near complete version of the software part of the package. You can't save samples yourself but there are several built-in which you can manipulate with the package's many dazzling functions, described in the boxes on this page.



● You can load in the *Sequencer One* samples into our *Stereo Master*. Because *Stereo Master* is set up to load in its own type of samples you need to edit the line under "directory." Click on SAM and a vertical line appears. Use <Backspace> to delete SAM and type in a <*>. Now click on the little symbol at the top left of the list of samples. You can now load any sample. Go into the samples folder and have a listen to those funky sounds.

KEYBOARD COMMANDS

Certain functions can only be accessed from the keyboard. They are:

<Control>-E: changes edit buffer size. This enables you to change the amount of memory allocated to the area used to hold any sample when copying or overlaying it.

<Control>-N: toggles the sample between "signed" and "unsigned" format. You won't need to use this control at all in the demo.

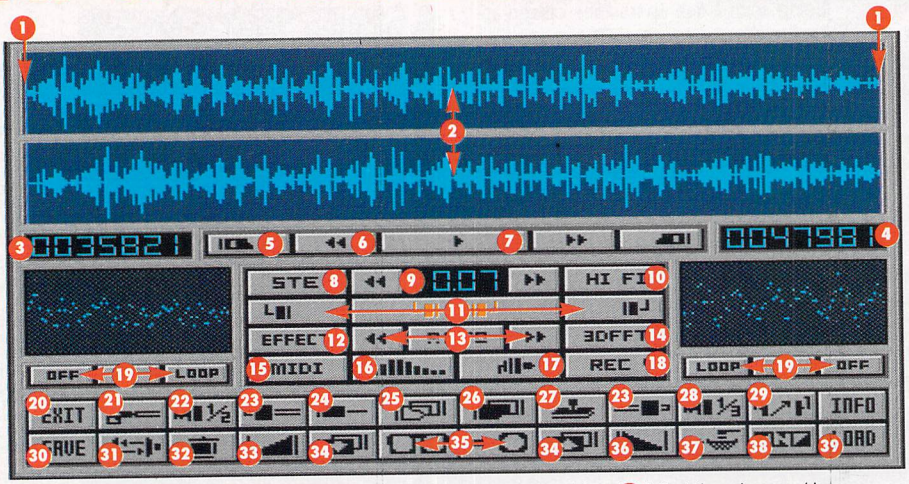
<Control>-S: saves current program settings. Again, not applicable to the demo.

Cursor left and right: swaps the display between bright and not-so-bright.



A SMALL SAMPLE OF WHAT CAN BE DONE

All the functions except Record, Listen and Save are working in this preview version. Play about with the built-in samples to get a feel of what the program can do.



1 Only the sample area between these two lines (sample cursors) is affected by each operation. Move the lines by clicking on them and dragging the mouse

2 The sample waveform display: left channel on top, right on the bottom

3 Position of the left hand sample cursor in memory

4 Position of the right hand sample cursor in memory

5 When you play part of a sample, you notice a small dot moving along the main sample display. This button moves the start sample cursor to the location of this "ghost" cursor, and the equivalent button on the right moves the end sample cursor there

6 Scrolls the sample window to the left or right

7 Plays the sample

8 If you have an STE, you can change the volume and tone of the sample, and all output now takes place via an amplifier connected to the STE

9 Alter the playback rate of the sample (displayed in the centre)

10 If you have the Microdeal Playback cartridge connected, click this to play samples in true stereo (to an amplifier) on a standard STFM

11 Use to select left, right or both channels for playing samples

12 Click this to distort and generally mess about with the samples

13 Record trigger – disabled in this demo

14 Displays a 3D Fast Fourier Transform graph of the sample area – try it!

15 MIDI control panel – see box

16 Displays a spectrograph of the input to the sampler – no use in this demo

17 Listen to input – disabled

18 Record sample – disabled

19 Select Loop to make the sample repeat endlessly when played

20 Quit the demo

21 Removes the currently selected sample area (to an edit buffer) and closes up the gap that's left

22 Compress the sample area by half. Adjust the playback speed accordingly

23 Adjust the volume up/down

24 Insert the edit buffer into the current sample area without overwriting what is already there

25 Overlay. Select a sample area exactly as you normally would, then click Overlay. A blue box appears around the area. Click and drag on either the start or end sample cursor to move the entire area over the sample window to where you want it. Then release the button and click Overlay once more to merge the area with the destination area. Selecting "Half" initially halves the volume of both source and destination areas; "Full" leaves them both as they are

26 Copy to sample. You use this in exactly the same way as Overlay, but the sample obliterates the destination sample area

27 Copy sample area to edit buffer

28 Compress the sample by two-thirds

29 Bounce stereo – makes the left channel appear to glide smoothly across into the right channel. Use the sliding arrows in the dialogue box to control the amount of cross-over

30 Save – disabled

31 Swap the left and right channels

32 Wipe the sample area completely

33 Fade sample area in – use the arrows to control the rate

34 Like Copy, but does it between channels

35 Zoom in or out of the sample area

36 Fade sample area out

37 Filter – enables you to remove frequencies from the sample area

38 Reverse – flips sample area from end to end

39 Load – Loads in a sample

THE MIDI CONTROLS

The MIDI controls enable you to assign samples to the function keys and play them back via a MIDI keyboard or with the ST keyboard. The function keys have two lights underneath them. When one or both is lit, it means that a sample on that channel has been assigned to that key. To program a function key, select the sample area and playback speed you want, click on PROG and then click on the appropriate key.



Click to play the preset samples using the function keys

Click on this, then on a function key to display its preset sample on the main screen

Click to enter test mode. In this mode, only input from a MIDI keyboard is recognised, and any such input simply plays the current sample

This clears a preset sample from a function key

Select one of these to raise or lower the pitch of the samples being played by one octave

Click to transfer control to a connected MIDI keyboard. The active preset is played (if Split mode is off) every time a key is hit. Press a function key to change the active sample

Click to play samples from the ST's keyboard. Change the current sample with the function keys



Image Power

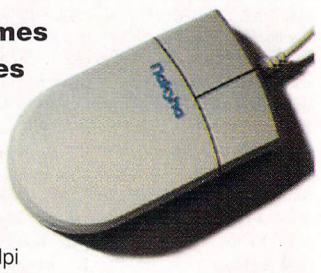
Atari/Amiga Handheld Scanner

Available for the Commodore Amiga and the Atari ST range of computers, the Naksha A500 Scanner features switchable resolution between 200 and 400dpi, 32 grey shades and adjustable contrast.

Every Scanner comes complete with Express-IT! Software, an image utility which allows you to save images in formats which suit your favourite packages.

£99 or less
from all good computer shops

The ultimate games machine deserves the ultimate mouse.



The Naksha Upgrade Mouse is silky smooth, operating at a high 280dpi resolution. Supplied with Mouse Mat, Pocket and ***FREE*** Operation Stealth. No cables - no fuss. Simply plug in and go.



Naksha

Naksha (UK) Ltd., 29 The Wharf, Warrington WA1 2HT
Tel: (0925) 56398 Fax: (0925) 574375

Prices exclude VAT E & O E Prices subject to change without prior notice
Trade Marks and Registered Trade Marks are acknowledged

TEN TOP UTILITIES

All these utilities run on all STs in all resolutions. All except *Procalc* are on Side 1 of the Cover Disk.

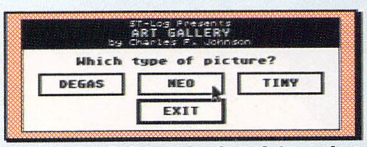
DESK ACCESSORIES – HOW THEY WORK

When you switch on your ST, it first takes a look at its disk drive – normally drive A, unless you have a hard drive set up as the boot drive. If there's nothing in that drive, your ST eventually presents you with the Desktop anyway. But if you use a disk to boot up (that is, start up your ST from), the first thing your ST does is look on that disk (called, amazingly, the boot disk) for a folder called AUTO. Any programs in here get run automatically before anything else happens – just the place to put utilities you want run every time.

Next your ST looks at the boot disk's root directory for Desk Accessories – that is, programs ending in .ACC which are not in any folders. It can load up to six of these special programs and hold them in memory, and they can then be called up from the "Desk" menu at the top of the screen at any time, even when you're running another program (so long as it is one that has the Desk menu available). So to load any Desk Accessories you want, simply check that they end in .ACC, copy up to six of them onto a blank formatted disk, making sure that they are not in any folders, and then reset or start your ST with that disk in the drive. For more information on Desk Accessories, see page 16.

Art Gallery

BY: CHARLES JOHNSON
FOLDER: GALLERY
FILES: ARTGALRY.ACC
TO GET STARTED: see Accessories box



● **With *Art Gallery*, viewing pictures is as easy as clicking on a picture type.**

There you are with a mass of picture files and you've gone and forgotten what they look like. With *Art Gallery*, you can view pictures from the Desktop without having to load up an art package. It's a Desk Accessory, so once it's loaded it is constantly to hand. You can take a peek at any of three format pictures. NEO format pictures are produced by *Neochrome*, *Degas* format by the *Degas Elite* art program, and these are the two main picture formats. NEO pictures are always low resolution. *Degas* pictures can be all three resolutions, but you can tell which one the picture is in by the file extender – .PI1 for low resolution, .PI2 for medium and .PI3 for high resolution. Tiny is a special compressed format designed to save you disk space – the pcitures have the extension TNY.

Caps

BY: ANTONIO FLACCOMIO
FOLDER: CAPS
FILES: CAPS.ACC, CAPS.DOC
READ: CAPS.DOC
TO GET STARTED: see Accessories box

There you are hammering away at a text editor and there's no way you can tell if capitals are on or off without typing something in. If you get it wrong you have to delete the text, change the caps status and start again. Wouldn't it be handy to see at a glance if you're in caps mode or not? Well, *Caps* does just that. In the top left-hand corner it displays the word "caps." If it appears greyed-out, caps are off; if it's solid, caps are on. *Caps* is a Desk Accessory – see the box for everything you need to know about how these work, and say goodbye to Oh-hell-I've-just-written-a-whole-line-in-capitals misery!

Free Space

BY: RICHARD KAVANAGH
FOLDER: FREEMEM
FILES: FRESPACE.PRG
GET STARTED WITH: FRESPACE.PRG

Did you know that a 520 STE has 375 kilobytes of memory when the Desktop is displayed and before you run any programs? What a swizz! It says 512 in the manual! Well, yes, but as soon as you switch on, your ST loads in the operating system from a ROM chip inside, so everything is ready for use straightaway. (ROM stands for Read Only Memory – your ST uses these chips to save you the hassle of disk-loaded operating systems like those boring old PC-contemptible jobs. Just turn on and go – quick and easy. For more details, see page 16.) The operating system handles things like working the disk drives and display and gives you the fancy menus and icons to play about with (see page 16 for full details). All this uses up some of the memory. If you've got any Desk Accessories loaded in, these take some too. It's handy to know how much you've got left. Run *Free Space* and you get an accurate measurement – useful if you've just fitted some extra memory and need to know if everything is okay too.

Mouse Accelerator

BY: KEN BADERSTSCHER
FOLDER: MACCEL
FILES: MACCEL3.PRG, MACCEL3.DOC
READ: MACCEL3.DOC
GET STARTED WITH:: MACCEL3.PRG

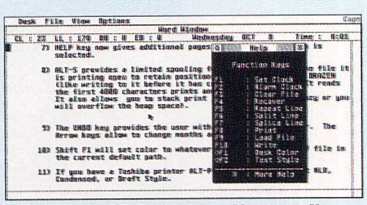
The mouse that Atari let loose in the box with your ST is, well, quite good – but a little slow, isn't it? You can buy faster ones, but why bother? All you need it a little program to rocket-propel the original across your Desktop. *Maccel3* does that and more. You can select the acceleration you want, and it can even blank out the screen. Why would you want to do that? Well, if you leave your ST set up with the same display on-screen for ages while you have a cup of tea, visit your granny and go for a short walk along the Great Wall, when you get back you might find your monitor suffering from phosphor burn-in. On the inside of your monitor or television screen is a coating of phosphor which is bombarded by electrons to make it glow. Over time it degrades. The trouble starts if the display doesn't change, 'cos then the phosphor degrades at different rates, resulting in horrid shadows that just don't go away.

Maccel3 blanks out the screen if you don't type anything or move the mouse for a few minutes. As soon as you touch anything it's back to normal. You set the mouse speed by clicking on the little boxes on the left of the *Maccel3* display and the screen saver interval using the little slider. Click on Save and it's all set up as you want it every time you boot up.

The easiest way to use *Maccel3* is to put in the AUTO folder on your boot disk, so it's all ready to go. What's exactly are a boot disk and an AUTO folder? For the complete answer, take a look at the box about Accessories above.

Newword

BY: F. GREGORY SCHNELLER
FOLDER: NEWWORD
FILES: NEWWORD.ACC, NEWWORD.DOC
READ: NEWWWORD.DOC
TO GET STARTED: see Accessories box



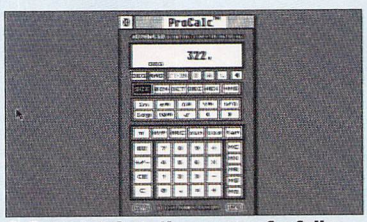
● **Like any GEM window, *Newword's* text window can be moved and resized. Pressing <Help> brings up the help window, with all the keyboard commands.**

Imagine a fully-featured text editor with full block functions, calendar, alarm clock and help whenever you need it. More than that, imagine it's a Desk Accessory, so you can edit the odd text file within other programs. You can stop imagining – it's on the Cover Disk! *Newword* has many of the features of a full-blown word processor, including printer control. The only real limitation is you can only edit up to 400 words. But it should work with all well-behaved GEM programs – those that use your ST's operating system to provide drop-down menus.

Press <Help> to bring up the help window, with all the keyboard commands. Click on the symbol at the top right for more commands. Hit <Undo> and you've got a useful calendar too.

Procalc

BY: JOHN BROCHU
FOLDER: PROCALC
FILES: PROCALC.ACC
TO GET STARTED: see Accessories box



● ***Procalc* brings the power of a fully featured calculator to your Desktop.**

STs make beautiful number crunchers – with a zappy 16-bit processor, all they need is the right program. *Procalc* turns your ST into a fully featured scientific calculator. It can do logs, exponential, power, root and trigonometric calculations in degrees and radians. It can also handle binary, octal, decimal and hex – all sorts of tricks up its sleeve. You use it pretty much the same way as a standard hand-held calculator except your batteries don't run out half way through something really important. You can click on the buttons with the mouse or you can use the keyboard. Press <Help> and you see which keys are which buttons. Click on the tiny box marked "Info" for the manual. *Procalc* can be used as a Desk Accessory or as a normal program. On the Disk it's set up as a Desk Accessory. To turn it into a program, just change the .ACC extension to .PRG – on your backup copy, naturally.

QuickDisk

BY: LINK THOMLIN
FOLDER: RAMDISK
FILES: RAMDISK.ACC, RAMDISK.DOC, RAMDISK.RSC
READ: RAMDISK.DOC
TO GET STARTED: see Accessories box

QuickDisk is a RAMdisk program – just about the single most useful utility you can have. It reserves an area of memory that your ST uses as an extra disk drive. You can write files to it and read files from it, just like any other drive. The advantage is that the data is held in memory, so everything is lightning-fast. There are loads of RAMdisks about, but *QuickDisk* is one of the easiest and fastest.

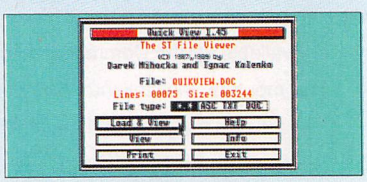
It's a Desk Accessory and can be reconfigured from the Desktop. What does this mean? Well, first boot up with the QuickDisk on your boot disk (see the box about Accessories for details). You can now install your choice of size. Now it says it's set up as drive M. Where's drive M, then? Er, well, you have to install an icon before you can get at it. Click on a drive icon on the Desktop once so it turns black, then go up to the "Options" menu at the top of the screen and select "Install Disk Drive." Click on the drive identifier and change it to M. While you're at it, change the icon label to "RAMdisk." Now, click on Install and there it is!

Bit of a pain to do this every time, though, so move up to the "Options" menu again and select "Save Desktop." Your ST now writes itself a little file called DESKTOP.INF which it loads when it boots up. This holds the information on what and where your icons are.

Once your RAMdisk icon is on-screen, you can treat it just like an ordinary Floppy Drive icon – save data to it, copy files to it, the lot. But ***beware: everything written to a RAMdisk disappears when you switch off your ST or reset,*** so if you want to save your data permanently *make sure you save it* to a real disk or hard drive before you switch off or reset.

Quick View

FOLDER: QVIEW
FILES: QVIEW.PRG, QUIKVIEW.DOC
READ: QUIKVIEW.DOC
GET STARTED WITH: QVIEW.PRG



● ***Quick View* enables you to take a longer look – or even read backwards...**

Double-click on a text file and your ST asks if you want to show it, print it or cancel. If you have a printer attached you can click on Print and get useful hardcopy – but don't try this if you haven't got a printer plugged in, or your ST may just hang up. Click on Show and there it is on-screen. You can scroll through it forwards, but can't go back again and if it's written in a higher resolution than you're in then it all gets very hard to read. Not exactly stunning. *QuickView* fixes all that, giving you excellent facilities for browsing through documents. The entire file is loaded into memory and you can go backwards and forwards to your heart's content. If you run *QuickView* in low resolution, it still gives you an 80 column medium resolution display. Select "load and view" to read a file and press <Esc> to return to the selection screen. Pressing <Undo> exits the program immediately. No more cursing as the bit of text you wanted to read whizzes off the screen!

Selector

FOLDER: SELECTOR
FILES: SELECTOR.PRG
TO GET STARTED: SEE BELOW

Desk Accessories are dead handy little utilities to have loaded in. The real pain is that you can →

WE CAN'T THINK OF A HIGHER CALIBRE PRINTER AT SUCH A LOW PRICE, CAN YOU?



Fujitsu's new dot matrix printer – the DL900 – is undeniably low-priced. Less than £300.

The question is, what can you expect for your money?

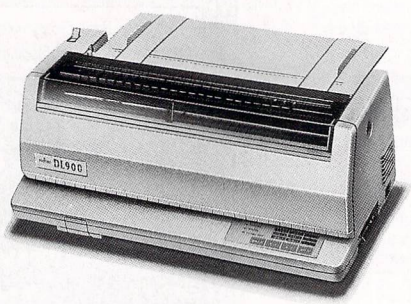
Can you expect really high quality print output, for instance? Well yes you can. The DL900 is a 24-pin printer with a speed of 180cps.

Do you get a variety of printing options? Sure. You can print envelopes, bar-codes and labels with a wide range of resident fonts.

And what about spread sheet capabilities? (Yes again, you can print on A3 portrait or A4 landscape.)

Is it compact though? Indeed it is. Even being a 110 column printer it's smaller than most 80 column models.

Easy to use? Definitely. The free set-up program disc means it's simple to configure the DL900 via your PC.



FUJITSU

The global computer & communications company.

Anything else? Of course. The DL900 is designed and manufactured by the world's second largest computer company.

Need we say more? We think not.

Please send me further information on Fujitsu's new DL900 printer.

Name _____

Title _____

Company _____

Address _____

_____

Phone _____

Fax _____ STF/

Fujitsu Europe Ltd, 2 Longwalk Road, Stockley Park, Uxbridge, Middlesex UB11 1AB. Phone: (081) 573 4444, Fax: (081) 573 2643.

only load six of them in from your boot disk when you turn on your ST, and they all have to be on that disk. But you might have dozens of Accessories to choose from. In no time you've got a huge collection of boot disks with different combinations on. Now there is an easy solution. With *Selector* in an AUTO folder, you can choose from a menu of Accessories on the same disk and only load those you want each time!

To use *Selector*, simply create a folder on your boot disk called AUTO and copy SELECTOR.PRG into it. Then copy all your Desk Accessories, as many as you like, to the root directory of the same disk – that is, not inside any folders, especially not inside the AUTO folder. Then just use that disk whenever you switch on or reset your ST, and *Selector* asks you which Accessories you want to load that time. Use the cursor keys to highlight each program and the <Return> key to change its status. Press the Spacebar when it's all to your liking. Because of the way the ST is designed you're still limited to six Accessories, but you can choose any six you like.

It works because programs in the AUTO folder get run first, before Accessories are loaded (see the box on Accessories, page 36). Desk Accessories use the file extender .ACC. It's this your ST looks for when trying to load them in. *Selector* works by getting in first and renaming the ones you don't need to .ACX, so your ST doesn't recognise them and they don't get used. Now you can keep all your Accessories on one handy disk! Smart!

What Is?

BY: BILL AYCOCK
FOLDER: WHATIS
FILES: WHATIS46.ACC, WHATIS46.DOC
READ: WHATIS46.DOC
TO GET STARTED: see Accessories box

There's a bewildering array of different file types on your ST. Files are collections of digital data – programs, text files, pictures or sounds, almost anything. Each file has a name, up to eight letters long. Then there's a full stop and another three letters. These three are called the file extender and usually denote what type of file it is. PRG files, for instance, are programs and these are executable – that is, you can double-click on the file and run it. Other than checking the file extender it's impossible to tell what files are, without experimenting with them. Well, not exactly – you could use this handy little number to find out what they are! It's a Desk Accessory – see the box on page 36 for how to use these.



● Click on "choose a file" and *What Is* tells you what you're dealing with. Here it examines itself. (Yes, okay: "ooer.")

THE COVER DISK NEEDS *YOU*

We need *your* software – games, utilities, demos – anything good, original and short. If you've written anything worthy of the *ST FORMAT* Cover Disk, send it with this form and full documentation to: Chris Lloyd, *ST FORMAT* Cover Disk Editor, 30 Monmouth St, Bath, Avon BA1 2BW. Then please be patient: we get heaps of submissions, and we try to give them all a fair testing!

Name _____

Address _____

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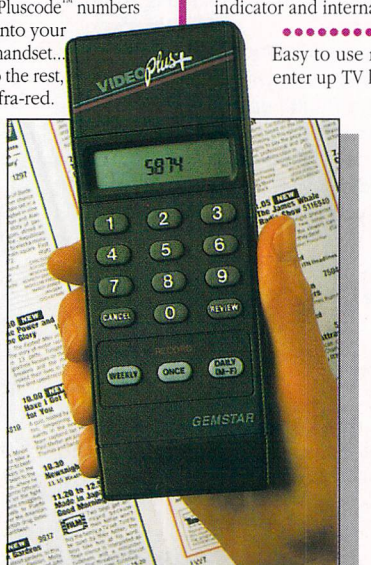
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Software sensation

WORD PROCESSING

At their most basic, word processors are like sophisticated typewriters, in that text can be entered and printed using them. However, word processors go much farther. They enable you to store your text for later retrieval and editing at any time, they can format it into whatever style you like, spell-check it, tell you how many words you've written, move parts of it around for you, and carry out many more operations that it would be impossible or time-consuming to do by conventional means.

The more advanced WPs may include a thesaurus (which gives you synonyms for any particular word) and an outliner, an aid to planning your writing. Although it's possible to buy a reasonable WP for less than £50, for the more complicated facilities you have to pay more. It depends on how you want to use it; for the odd page there's no point in shelling out £150 on something of which you'll never use half the features. If you write for a living you'll want the best there is.

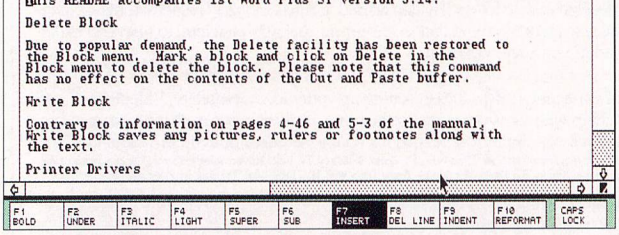
WORD WRITER ST

£49.95

GST Software (☎ 0480 496789)

Almost a clone of *First Word Plus* but with some extra features. The WYSIWYG display and the use of GEM menus is the same, but you get a thesaurus and an outliner thrown in, too. Indeed, *Word Writer ST* is just about the only WP you'll find with an outliner. At work it's a little faster than *FWP* and makes better use of keyboard shortcuts (keys you can press to choose items from the menus directly). Another ideal beginner's package and it's cheaper than *FWP*, but there's no graphic support.

***STF* Rating – 86%**



THAT'S WRITE

£99.95

Compo Software (☎ 0480 891819)

That's Write starts impinging on DTP territory with some of its features. It uses proportional fonts, which means each letter of a word takes up only the space it needs, rather than a fixed width that's applied to each letter. This makes the page look more professional and pleasing to the eye. Unfortunately, it slows down the screen display and even the printing, because everything has to be printed in graphic mode. There's a large dictionary and an index/table of contents generator, too. Fairly powerful, but needs a lot of patience to learn and use.

***STF* Rating – 82%**

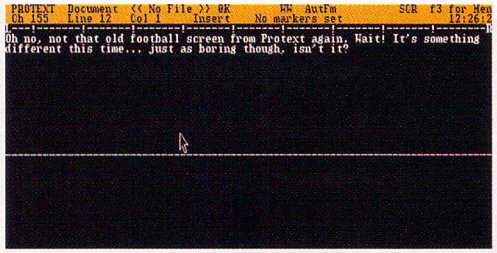
PROTEXT

£152.75)

Arnor (☎ 0733 68909)

Protext isn't the easiest WP to learn, since it uses quite a primitive display (you can't see the layout of your page until it's printed) and it uses some obscure commands. However, the power and speed it offers when you're familiar with it, puts it at the top of the list for the serious user. V5.5, the newest, includes a thesaurus, spell-checker and automatic hyphenation to improve the look of your page. GEM menus are available if you want to use them. We use *Protext* to write *ST FORMAT* each month, it's that good – but it does need 1MByte to run.

***STF* Rating – 95%**



● It's kickin', it's chillin', it's even illin', but it makes a terrible screenshot: *Protext 5.*

FIRST WORD PLUS

£79.95

GST Software (☎ 0480 496789)

FWP is an ideal choice for a newcomer to word processing. It uses clear, logical menus and has a full WYSIWYG (What You See Is What You Get) display, so there's no guessing how your page will look. It has a spell-checker but no thesaurus, and, because it uses GEM, it tends to work rather slowly, particularly when you're scrolling through text. There's even limited graphic support. *FWP's* older brother, *First Word*, is available in the Public Domain, so have a look at that if you like the sound of this.

***STF* Rating – 83%**

● *First Word Plus* is slightly less illin' than *Protext*, but nevertheless it has some nice features, like limited graphic support, handy function key display and matching pink'n'green furry dice (deluxe edition only).

K-WORD 2

£39.95

Kuma Software (☎ 0734 844335)

Getting on a bit but still reliable, *K Word 2* is another *First Word* style WP. Again, GEM is used throughout, so it's all a bit slow, though easy to learn. One good point is that the program is compatible with the other Kuma programs (*K-Data, K-Spread* and so on) so, if you have those, you're in business. Annoyance: the spell checker is run as a separate program which means you have to quit from *K-Word* to use it. Quite basic, but handy for the odd letter.

***STF* Rating – 76%**

DESKTOP PUBLISHING

Long ago (we're talking the 1970s here), before there were such things as STs, newspapers and magazines were put together the hard way – by manually adjusting lines of metal type on huge printing presses. Now any publication worth its salt is created with a desktop publishing program.

DTP programs enable you to lay out headlines, text, pictures, line drawings and anything else you want on the ST screen, in exactly the way it will look on the finished page, using a variety of fonts (character designs) and styles. Before making the finished copy, you can play about with ideas as much as you like and see instant results. The result can then be output to anything from a simple dot matrix printer to a professional typesetting bureau. At *ST FORMAT*, we print the first proofs to a LaserWriter.

CALLIGRAPHER

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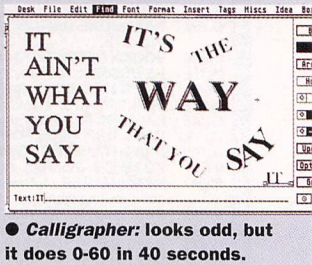
Working Title (☎ 0865 883233)

Calligrapher isn't really a DTP package, but then it's not a word processor either – it's described as a "document processor." This means you lay out text in a more rigid columnar format than most DTP packages, and pictures aren't quite as easy to manipulate.

However, you can do many things it would be hard to do elsewhere. *Degas* pictures can be altered before importing to give them weird effects; text can be bent in strange ways; tables can be automatically generated; and mathematical formulae – usually completely unreproduceable with standard tools – are easily created.

Some of these features are only available by purchasing add-on "paks." These paks mean you can expand the system and add as many features as you want. *Calligrapher* is definitely worth a look, but it won't be to everyone's taste.

***STF* Rating – 85%**



● *Calligrapher:* looks odd, but it does 0-60 in 40 seconds.

TIMEWORKS DTP

£99.99

Electric Distribution (☎ 0480 496666)

The oldest package here and one of the most basic, though for smaller publishing tasks (newsletters or suchlike) it's perfectly adequate.

Timeworks doesn't use vector fonts. So what? Well, at large sizes, the edges of the letters appear jagged because they're just magnifications of the normal text size. Some of its text handling functions are slightly primitive and printer output on low-res dot matrix printers is disappointing.

Unless you're not too worried about the quality of your final copy, or you don't need too much power, it might be worth waiting for the updated version – *Timeworks 2* to be reviewed next month – to appear, or at least looking for a cheaper copy elsewhere.

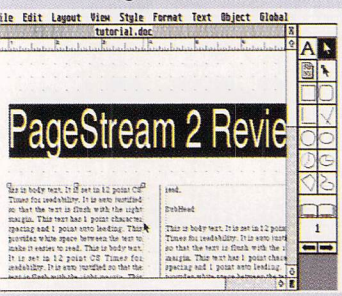
***STF* Rating – 72%**

There is an enormous lot of software about for the ST. What does it all do? Why should you want it? Which bits are best? Ed Ricketts takes you through five vital areas – word processing, desktop publishing, business, programming and utilities and recommends the packages that you really should have

PAGESTREAM 2
£199.95
Soft-Logik/Silica (☎ 081 309 1111)

Undoubtedly the easiest to use and most versatile DTP package for the ST. The program uses a mixture of normal GEM menus and a few icons, which means you can be making pages five minutes after loading. It's also the only ST DTP program to use Compugraphic and PostScript fonts. These are standard fonts of a very high quality on the Macintosh and the PC, thus there are hundreds available.

PageStream 2 produces excellent output even on the lowliest dot matrix printer because of its font scaling technology, which basically means whatever size your characters are, they're of the best possible quality. Colour output is possible but obviously only on a colour printer. An excellent package.



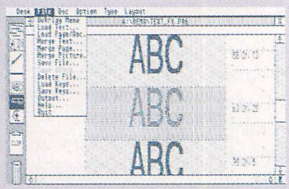
● ***PageStream 2.*** **Sleek lines and impressive body styling.**

***STF* Rating – 95%**

FLEET STREET 3
£199.00
Mirrorsoft (☎ 071 928 1454)

Another oldie, but this one's been recently updated to bring it up to scratch. Like *PageStream 2*, it uses vector font scaling, so text looks great at any size. Strangely, it has no text rotation functions and there's no colour output. Output on the whole isn't as good as *PageStream 2*, but it's nevertheless impressive.

Fleet Street 3 sits somewhere between a basic package like *Easy Text* and a top-of-the-range program such as *PageStream 2*. It's not cheap and you may want to give it a trial run before shelling out on it.



● **The only publisher left in Fleet Street.**

***STF* Rating – 76%**

EASY TEXT PLUS
£19.95
zzSoft (☎ 0254 672965)

The budget buy of the bunch, *Easy Text Plus* is definitely the beginner's choice. It has some very basic picture and text facilities, such as on-screen text cutting and pasting (moving text from one place to another) and the importing of *Degas Elite* pictures. However, to create anything serious requires a lot of time and effort and the end results are never going to be more than average. Still, it's only £20 (less than a game) and you could use it to learn the basics of DTPing before moving up to a more professional package.

***STF* Rating – 68%**

BUSINESS

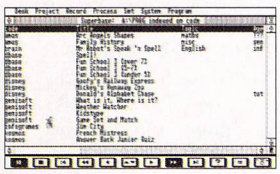
The business category covers all those boring jobs you have to do which can be made a little less boring by using your ST to help – keeping records of things, balancing your chequebook, or forecasting your budget for the year ahead. Obviously you need something that's designed for the job you have in mind – it's no good getting a spreadsheet to keep your collection of rare Throbbing Gristle records in order.

Spreadsheets enable you to enter a series of numerically-related formulae in a large matrix, then alter the values in each cell of the matrix to see what effect it has on the overall total. So, if VAT suddenly goes up to 20% you can simply alter the cell that contains the definition "VAT = whatever percentage of total price" to 20% and every other value is updated automatically to take that into account.

Business software is traditionally very expensive, sometimes artificially so, but there are a lot of cheaper packages about for the ST that can handle quite complex and heavy demands.

SUPERBASE PROFESSIONAL
£249.95
Precision Software (☎ 081 330 7166)

Very expensive but incredibly powerful. The database enables you to store graphics as well as text, and sort everything using a complicated, but ultimately superior, relational language. Relational means different databases can be compared and sorted together, giving cross-references between them. If you've got the money to buy this, do so (and why not make a donation to the *ST FORMAT* fund too, oh rich person?)



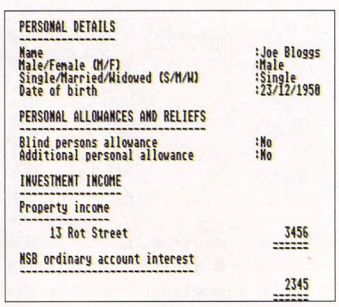
● ***Superbase Pro:*** **expensive.**

***STF* Rating – 86%**

PERSONAL TAX PLANNER
£39.95
Digita (☎ 0395 270273)

Tax: the dullest thing to work out since Mr Algebra had his bright ideas. Using *PTP* could at least make it a little more comprehensible, if not enjoyable. The program asks a series of questions – the sort of thing you'd find on a normal tax return – and then tells you what you owe. Future arrangements can be catered for with pension plans and suchlike. You still have to fill in your tax return by hand, though.

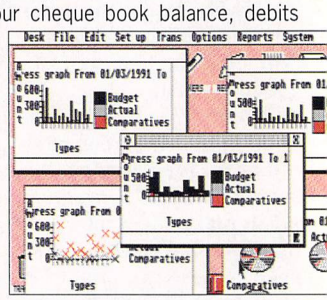
***STF* Rating – 74%**



● **Tax can be fun with *Personal Tax Planner!* Look, it just oozes excitement! Leer over those figures. Drool at those tax returns. All right, so it's dull, OK?**

HOME ACCOUNTS 2
£54.95
Digita (☎ 0395 270273)

If you have trouble managing the money you earn (for example, you spend it all) you need *Home Accounts 2*. It enables you to set up a running record of anything financially-related, such as payment of bills, your cheque book balance, debits and withdrawals from your bank and so on, presenting it all in an easy-to-use and attractive way. Graphs of your overdraft can help ease the pain. The best home accounts package you'll find on the ST.



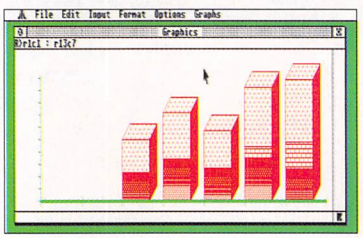
● ***Home Accounts 1*** **was so succes just had to make a sequel.**

***STF* Rating – 90%**

GRAPHICSHEET
£20.00
Glentop (☎ 0734 794941)

A spreadsheet for £20 is usually not worth a second look but *Graphicsheet* is different. It has a fairly huge capacity of 65000 columns and rows, if you've got the memory and disk space. Seven windows can be open at once and graphics can be produced in the form of pie charts, bar charts and suchlike. Not really recommended to use if you're running the Bank of England, but it's great for beginners and small business owners.

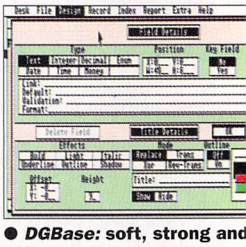
***STF* Rating – 76%**



● ***Graphicsheet*** **showing its, er, graphics, on the, um, sheet. Hence, perhaps, the name.**

DGBASE
£49.99
Digita (☎ 0395 270273)

If *Superbase Professional* is too expensive, why not go to the other end of the scale and get *DGBase?* Not surprisingly, *DGBase* is a simple database (a program that can hold and sort information of all kinds.) Fields (the individual parts of each record you use to hold data) can only be 255 characters long and you can only have 64 of them in each record, so the information you store has to be quite simple – book titles or the like. There are several tutorial files on disk to help the beginner. Overall, the program could be a useful buy.



● ***DGBase:*** **soft, strong and long. Probably.**

***STF* Rating – 71%**

PROGRAMMING

If you've come to the ST from an 8-bit machine with a built-in language, you might be initially bewildered by all the languages you can get for the ST. Surely you only need BASIC?

Well, no. Although BASIC (in all its forms) is a very popular language, there are many others you may find better suited to your way of doing things, or can let you do things that it would be difficult to do in BASIC. For example, you can do things in machine language that it would be impossible to do any other way, but you need to have a firm command of the language for that.

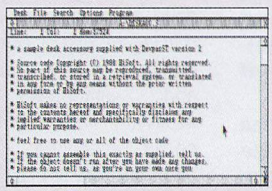
All the languages featured here can be compiled – that is, their listings can be put through a program which make them into stand-alone runnable programs – there's no need to have the original package to make them run. In some cases though, these compilers are separate packages costing extra.

HISOFT LATTICE C

£149.95

HiSoft (☎ 0525 718181)

C is the "in" language of the moment, and not without reason. It enables you to access the ST's lower functions, so giving you greater control, but without the complications of assembly language. It's quite tricky to learn, but again, once you know what's going on, you can wring every last drop of power from the ST.



● ***Devpac ST 2:*** **as used by the Bullfrogs.**

Lattice C is expensive, there's no doubt about that, but you get a lot for your money. An ANSI-standard compiler (which means it conforms to international standards, making the transfer of programs from micro to micro very easy), a fast compiler with good error-checking, and mounds of documentation. Unbeatable.

***STF* Rating – 90%**

DEVPAC 2

£59.95

HiSoft (☎ 0525 718181)

If you want to write in assembly language, don't think about getting anything other than *Devpac 2*. It can't make assembly any easier to work with, but it does offer a lot of utilities to make the coding process simpler. A monitor (a program that enables you to step through your program line by line as it's running) is invaluable when your program keeps crashing, and *Devpac 2* has a fine one. Compiled programs are blindingly fast – you'll never find a faster language than assembly.

***STF* Rating – 87%**

GFA BASIC 3

£64.95

GFA Data Media (☎ 0442 63933)

Generally reckoned to be the best all-purpose BASIC for the ST, v3 of this popular language comes with its own compiler that produces fast, small programs. All levels of the machine are accessible from the language and the input editor is error-trapped, so mistakes are less likely. GEM is easily controlled with the built-in functions, as are arcane things like XBIOS, GEMDOS and TOS calls. V2 is now in the Public Domain, so there are plenty of free example programs you can practice on.

***STF* Rating – 86%**

PROSPERO PASCAL

£99.99

Prospero (☎ 081 741 8531)

Pascal is a very strict language in that you must write programs to a definite structure, and consequently it's not wildly popular on the ST (except in America, for some reason). However, like C, you can do some impressive things in Pascal with some effort.

Prospero, like HiSoft, believe in giving you plenty of helpful utility programs, so you get the standard compiler, a debugger and a special working environment that enables you to access these programs quickly. The documentation is superb: three volumes, covering not just how the program works, but each and every GEM call, together with some example routines.

***STF* Rating – 82%**

STOS

£29.95

Mandarin (☎ 051 351 2961)

Although it's touted as a general-purpose BASIC, 99% of the time *STOS* is used for writing games. It's ideal for this because it includes many special routines that enable you to display and move sprites, play music or scroll the screen very easily. *STOS* ignores GEM altogether, so it's fast (but writing a GEM-like application is a pain). It comes with a number of utilities such as a sprite and music editor to make game creation easier. Results can sometimes be impressive, though you can always spot a *STOS* game a mile off.

***STF* Rating – 73%**

UTILITIES

If you want to use your ST and keep your sanity for more than two days, there are some programs you just have to get. Next time you howl with anguish because the *!??*! Desktop won't let you format a disk with more than 80 tracks, turn to *NeoDesk*. VIruses destroying your entire software collection? *UVK's* for you.

Believe us, sooner or later you're going to need one or all of the programs in this section. Don't wait until you're one step away from the rubber cell.

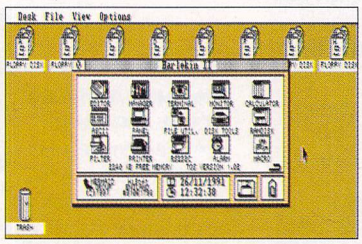
HARLEKIN 2

£59.95

HiSoft (☎ 0525 718181)

It's been done before in the Public Domain: cram as many utility programs as possible into one Desk Accessory. But *Harlekin* does it better and includes more utilities than anything else. You get a text editor, a comms program, a calendar/manager program, a file/memory monitor, a RAMdisk, a calculator, file copying utilities and everything else you might need. And it's all available at any time from any program with a GEM menu. Get it now.

***STF* Rating – 92%**



● ***Harlekin 2,*** **peeking shyly from the ST Desktop, is guaranteed to make you go "Ooh!" Really.**

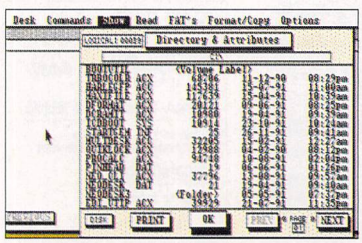
KNIFE ST

£29.95

HiSoft (☎ 0525 718181)

What happens when "the disk in drive A: may be damaged"? Dig out your *Knife ST* and there's a good chance you might be able to recover the valuable data from the disk. *Knife ST* is the ultimate disk/file editing tool. It's easy to use, but, if you need more powerful features (like digging around the FATs or changing the BPBs), they're there, too. Brilliantly designed and known to have saved many a day's worth of work.

***STF* Rating – 86%**



● ***Knife ST:*** **oddly-named, cunningly crafted, more useful than a pen.**

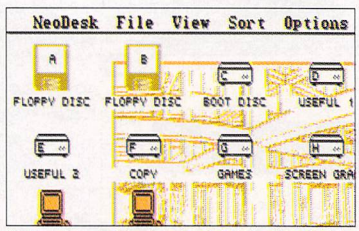
NEODESK 3

£39.95

Electric Distribution (☎ 0480 496666)

Use *NeoDesk 3* for any length of time and you'll balk in horror at the standard GEM effort forever after. *NeoDesk* is everything the GEM Desktop should have been. It has loads of features, the most notable being the ability to drag files onto the desktop for instant access; individual icons for specific programs; much improved file handling; extended formatter; simultaneous text and icon display on windows and thousands of other small but life-saving improvements which will endear you to *Neo 3* for ever.

***STF* Rating – 94%**



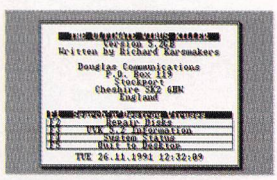
● ***NeoDesk 3:*** **standard kit in the *STF* offices. Useful bits galore.**

ULTIMATE VIRUS KILLER

£9.99

Douglas Communications (☎ 061 456 9587)

Previously called *AVK*, the *UVK* is the only virus killer you need. The main thing to note about virus killers is whether they work and on what software, so here are *UVK's* stats. It can recognise 899 bootsectors, 56 bootsector viruses, 32 anti-viruses, five link viruses, 75 harmless special applications that look like viruses, and can repair 462 bootsectors from various game disks, so if a game goes down you might be able to repair it. 'Nuff said.



● ***UVK:*** **AOK 4 U.**

***STF* Rating – 91%**

MULTIDESK

£29.95

Atari Workshop (☎ 0753 832212)

Desk Accessories are a great idea, but you can only have six of them. And what about when you want to load in a new one? You have to reboot. *Multidesk* enables you to load (or remove) as many as 96 accessories at one time (if you have the memory) and there's no need to reboot at all. Favourite accessory setups can be saved for future use. Watch out for *Multidesk Deluxe*, which is due soon and which will take up much less memory, so even a 520 ST user can use it.

***STF* Rating – 80%**

stereo MASTER

When you are considering purchasing a sound sampler there are several to choose from. Why compromise? Your choice should be the new full featured STEREO MASTER for the Atari ST range of computers. The package that gives you more extras than a M series BMW. By purchasing this state of the art product, which combines a quality sampler with the expertise of over ten years of software programming, you are purchasing a top quality product in the knowledge that it is not only compatible with existing Microdeal products but will also be with future ones.

What is Stereo Master?

Stereo Master is a low cost, high quality sound sampler for the Atari range of computers. The sampler cartridge enclosed in the package plugs into the ROM port at the side of the computer and allows you to analyze the sounds, coming in, change the way they sound using realtime special effects or record them from devices such as personal cassette players, Compact disc players etc. Once in the computer STEREO MASTERs unique editor will enable you to edit the sound in practically any way you can imagine. Once you have the sound sample how you want it, you may incorporate it into other programs such as Quartet or play it using routines supplied for many of the commonly available BASIC's.

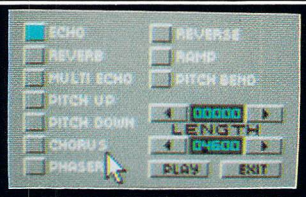


THE MAIN EDITOR SCREEN

The Sampling Software

Includes many features you would expect to find in a professional editing suite;

* Realtime playback ghost cursor marker
* Cut or Delete selected sample area
* Mix sample with full or half volume
* Shrink by 33%/50% by drag or wipe
* Fade in/out with selectable degree of fade
* Filter sample with hard/soft filter
* Full editting and control facility for Left/right channels
* Hifi Stereo playback option through PLAYBACK cartridge
* Record Frequency from 3.0 to 27.9 Khz in ST. mode
* Record Frequency 6.25, 12.5 and 25K in STE mode
* Bounce sample
* Decrease Volume
* Increase volume
* Trigger recording
* Loop sample
* STE Volume,Bass & Treble control
* Clear Left/Right samples
* Selectable trigger volumes
* Paste sample (using buffer)

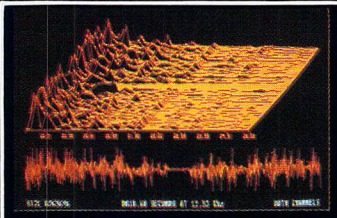


REAL TIME SPECIAL EFFECTS MENU

The Special Effects Software

For the first time ever you can emulate sound effects in real time, just like the sound labs can for film studios, normally the hardware to produce these effects would cost many times more than this package. Features on the FX menu include;

* Built in realtime special effects including, Echo, Reverb, Ramp, Pitch up/down, Multi Echo Chorus, Phaser, Reverse and Pitch Bend.
* Parameters of FX can be modified to provide 1000's of different effects.

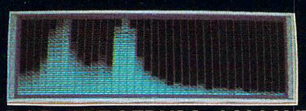


3D DISPLAY OF SAMPLE

The Analytical Software

A whole host of pro-type analytical functions include;

* 3D display of sample frequencies (Fast fourier transform)
* 3D display also includes 2D envelope display plus sample information
* Built in realtime spectrum analyzer
* Stereo Oscilloscopes with trigger markers



36 BAR SPECTRUM ANALYZER



THE MIDI CONTROL PANEL

The MIDI Software

Now you can trigger samples using external MIDI keyboard or the ST/E's keyboard. Just look at these features;

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* Samples can be mapped across a MIDI note range
* Load/save sample set (with all MIDI settings/splits)

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M31 The Midi Guide
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M24 Sampling
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Public Sector

PUBLIC WHAT?



Yes, it's true! There are thousands of *free* programs around for your ST in the Public Domain (PD). These are programs where the author has, for one reason or another, let go of all copyright. You are free to use, copy and distribute them at will (but not for profit, and normally only with all files on the disk intact). The software is a right old mix. There are games that enthusiasts have written mostly for fun, and demonstration versions of commercial releases so you can try before you buy. There are also little utilities to do all sorts of handy little jobs – some professional, others very much amateur affairs. There are oodles of sound samples, "clip art" you can use in your own documents and, ooh, all sorts. It would be impractical for you to have to get this stuff direct from authors, so Public Domain libraries sprang up to distribute the disks. (See page 48 for *STF's* directory.) The progs are free but, of course, PDLs have to charge for the disk, time and postage – they've got to cover their costs, right? Prices and service vary, but it's always cheap – typically about £3 a disk. For the same dosh as a full price release, you could pick up a dozen PD disks. What a bloomin' bargain, eh?

SHAREWARE

Also from your friendly local PD library comes Shareware. This is slightly different. The copyright remains with the authors, but they permit the programs to be distributed freely. You're invited to register your copy with them for a small fee. In return, you usually get full instructions, updates and other goodies – often another program. This originated in the States and, done properly, it works well. The authors get some reward for their hard work and you get proper support. If you come across a Shareware program you use regularly, it's worth sending the money – the more people do so, the more quality software gets released to the hungry public.

LICENCEWARE

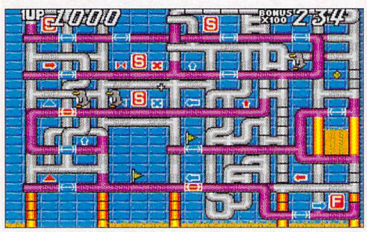
Yet another way to distribute software. Licenceware is only available from approved vendors, who pay a small royalty to the authors for each copy sold. The biggest and best known range of Licenceware is from Budgie UK, who have over 100 titles. The quality is often better than the usual PD releases and you've already made your contribution to the author when you buy the disk. Fair do's all round!

Welcome to the wonderful weird world of Public Domain. Cheap and cheerful – yes, our Public Domain reviewer, Chris Lloyd, is anybody's for a bottle of ginger beer

GAMES

PENGUIN

Floppyshop ST – Disk GAM 243



● Grab those red arrows and blocks and juggle them around to shepherd those funny little birds from S to F. *Penguin* is a cracker of a puzzle game which should test the patience of a saint.

There are these penguins, see, and they're really thick. Your job is to guide the daft little blighters through a maze of pipes to the finishing point since, if they wander around of their own accord, they fall through holes and generally get zapped. You can direct them using little red arrows and symbols which you pick up and place with the mouse. Sort of *Lemmings* like game, really. You need to keep your eye on each bird and plan ahead, since the route through the screen is often rather devious. You can select the start level and the number of penguins. It all gets exasperating pretty quickly as you jump up and down shouting, "Not that way, you stupid animal!" or words to that effect. *Penguin* was originally a 20 quid job, now it's been released as Shareware. Register for a fiver and you get printed instructions, a demo disk of other programs and some special offers. Bung in another three quid and you also get two more complete games.

***STF* RATING – 90%**

CLACKER

Budgie – Disk 78



● Look at the colour clash on that! *Clacker* gets increasingly frantic as you dash up and down chucking titles around, trying to plan ahead. One misplaced piece can muck up the best laid plans of mice and cute sprites.

Same basic idea as *Klax*, that puzzle game with the same basic idea as *Tetris* only without the tesselations. (No, really. *Tetris* is the one where different-shaped blocks tumble into a pit and you've got to fit them together so they make complete lines.) Here you're a cute sprite who runs up and down the central section where tiles materialise. You can hold two of the hideous carpet squares at once and lob them left or right. You've got to arrange them in a preset way. The easiest is three of the same kind in a row in any direction. The longer you take to collect each tile, the lower your efficiency rating goes. If it reaches zero before all the tiles appear, it's Game Over time. Very simple to play and jolly good fun it is, too.

***STF* RATING – 84%**

EXTERMINATE

Budgie – Disk 44



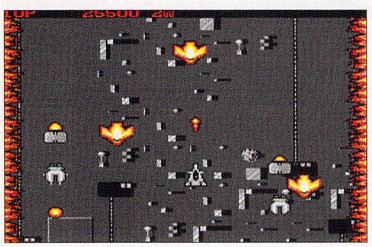
● What a hero – taking on the minions of the devil, armed only with a shiny new jetsled and a funny haircut. What a loony, more like! *Exterminate* has you testing your mettle against waves of horizontally-scrolling aliens.

Deep in the caverns of hell sits an egg that's about to hatch and unleash some really horrible thing on the unsuspecting world. Your job is... have you guessed it yet? It's another job for a lone fearless hero. *Exterminate* is a horizontal scrolling blast. There's a rather neat parallax effect on the cavern roof and floor. Other than that, the graphics are rather simple and drab. The sprites move smoothly and the pace varies from pedestrian to frantic as a dozen deadly purple blobs wibble across the screen at you. Not a bad blast at all.

***STF* RATING – 71%**

TALIONIS

Riverdene PDL – Disk 954



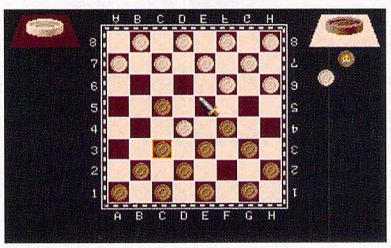
● For all its deficiencies, the *SEUCK* system can be used to put together a half-way decent shooter. *Talionis* has detailed sprites and is good for a mindless alien-wasting session. Touch the flames at the side and you're history.

Earth's defences have gone haywire after a nuclear war and, armed with a little fighter, it's – oh, why bother with a plot? It's the usual shoot-it-if-it-moves vertical scroller. This was written with a game construction package called the *Shoot-'em-up Construction Kit* (or *SEUCK*). Unfortunately, *SEUCK* games all look and play very much the same. You either love 'em or hate 'em. *Talionis* is one of the better ones – it starts out reasonably easy, getting progressively more taxing. The graphics are atmospheric and nicely done. The real drawback of all these games is the dodgy collision detection and the lack of power-ups.

***STF* RATING – 67%**

COMPENDIUM

Goodmans PDL – Disk 1369



● Remember those tacky million-games-in-one-box packages your auntie used to give you and all the little plastic bits got lost on the first day? *Compendium* brings them to your ST, only you can't lose anything! *Draughts* is the best presented.

As the name suggests, *Compendium* is an ST version of those all-in-one-box games collections. You take on a friend to bet on the outcome of a series of games of your choice. First to go bust loses, or first to break the bank wins. You can play at all the old favourites – pontoon, draughts, connect four, hangman, noughts and crosses, horse racing and battleships. Each of these games on its own is fairly basic but still quite playable – which means that taken as a series and played with a friend, *Compendium* should keep you amused on a rainy day.

***STF* RATING – 63%**

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G052 Spectral Sorcery
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G043 Froggy Rigel
G010 ST Vegas

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ST Applications

Over two years ago New Computer Express described our newsletter: "To call it a newsletter shows a terrific amount of modesty on their part...It really is packed with information, with more concentration on the serious side of the ST." ST Applications is a complete re-design of The ST Club Newsletter that has grown to 3,500 subscribers since we started it four years ago. Each monthly issue runs to at least 60 A-4 pages. If you would like to subscribe or receive an evaluation copy please complete the form below.

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The essential font utility for the ST. Edit or create GEM fonts, Signum fonts, screen fonts and downloadable printer fonts. Incorporates a suite of drawing tools, plus block manipulation tools, and it will import Calamus, Degas and Macintosh fonts. Price £19.95

UIS III

Powerful replacement for the Atari Item Selector. Universal Item Selector III incorporates a host of utility functions: format disks, copy, move and rename files and folders, create folders, find files, set file paths etc. "You'll wonder how you ever lived without it", ST Format, December 1990. Price £19.95.

The Catalogue

Our collection of PD and Shareware disks runs to over 2,000 disks and we guarantee same day dispatch on all orders. Our Free Catalogue - (46 pages A4) details these disks and all of our products and services: Books, Budgie disks and laser printing. We also publish: Astronomy Lab (£19.95), Key Master (£6.95), Oxford Chess (£9.95), Molgraph (£12.95), Guides to Timeworks DTP (£9.95), and 1st Word (£6.95). Details of these are in our current catalogue. Write or telephone for your copy today.

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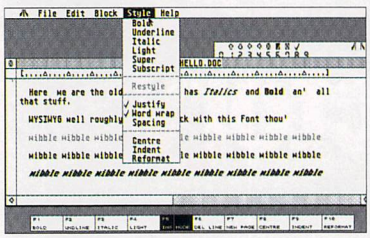
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UTILITIES

FIRST WORD

Goodmans PDL – Disk GD 93



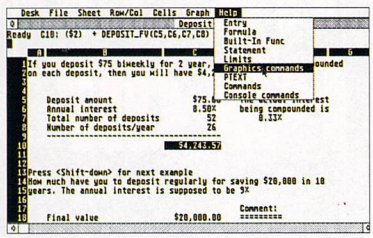
● Although lacking on advanced features, *First Word* is a robust and easy-to-use word processor. You're stuck with the standard GEM font and it can get slow when editing large documents, but everything is very intuitive and accessible.

One of the first word processors available for the ST and bundled with early machines. *First Word* makes full use of GEM, Atari's graphical user interface. All the functions can be accessed through drop down menus and the function keys. It has all you need for simple word crunching with block copying and pasting, text justification and a range of printer drivers. It has a WYSIWYG display – that is, "what you see is what you get," so you've got a good idea of what the finished document is going to look like printed out. If you just want to knock out a few simple documents and don't need fancy gubbins like multiple fonts and graphics, then *First Word* is probably all you need.

***STF* RATING – 91%**

SHEET v2.0

ST Club – Disk UTI 50



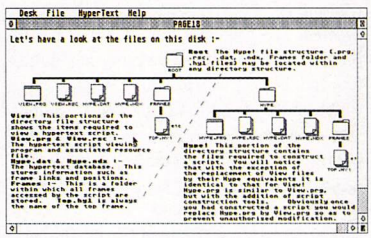
● *Sheet* looks daunting at first, and it takes a few sessions to realise the power of this program. Lucky for you you've got a handy 84 page manual to wade through, eh?

There are only three basic business programs: a word processor, a database and a spreadsheet. A speadsheet is a matrix of cells. Each cell can hold text, data or a formula, making them ideal for heavyweight number-crunching – like accountancy. *Sheet* is a combination of a powerful spreadsheet and a simple *BASIC* language. There's a wealth of functions – graphics, charts, string operations, text file access and full printer control. Thankfully, it also comes with a detailed and copious manual and in-depth tutorials and examples. You could pay a lot more for a lot less. If you're looking for a comprehensive spreadsheet, look no further.

***STF* RATING – 88%**

HYPE!

Seven Disk – Disk 532



● *Hype* links text, sound and graphics into a series of frames. Using the mouse you can click on buttons to move around the database. The finished scripts look very polished indeed. The full version is £20.

The idea of multimedia has been buzzing around the ST circuit for a while now. It's basically a program that mixes text, graphics and sound in a series of linked cards or frames. This is a demo version of a commercial release from WoollySoft. There is a short introduction script. The construction program is limited to seven frames, but other than that it's all here. You can import text files, *Degas* pictures, samples and music. It's even possible to run programs from within *Hype* Itself. Ideal for building interactive educational programs. Runs on a standard 520, but for big gobs of data you need to run it on an ST with more memory or a hard drive, 'cos otherwise it gets very slow.

***STF* RATING – 78%**

ZX SPECTRUM EMULATOR

Riverdene PDL – Disk 957



● Fed up with 16-bits? Hankering for the good old days when loading a program called for a tea-break and a visit to the shops and you had eight colours to choose from a palette of – er, eight? This *ZX Spectrum emulator* brings it all flooding back.

This caused dewy eyes all round the office as we fondly remembered the ridiculous keyboard layout, the stunning bleep and amazing colours of the machine that started a mini revolution in home computers – the rubber-keyed ZX. This is a comprehensive emulator with the whole of the ZX's ROM recreated inside your ST. Pressing the <Help> key brings up the Speccy's keyboard for all those amazing keyboard combinations. Start digging out all those old pokes!

***STF* RATING – 68%**

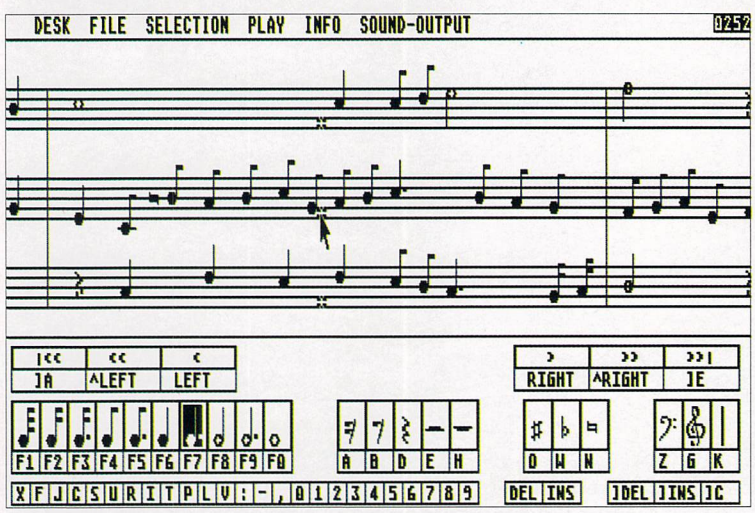
ART AND MUSIC

SOUND MACHINE

Riverdene PDL– Disk 958

There are quite a few tracker programs around. These can produce funky sampled music, but the input is just a mass of numbers. *Sound Machine* is a three-channel tracker program that uses standard musical notation – a lot easier to use if you've had any musical training. Also on the disk is a mass of samples with a converter program so you can use sounds in other formats. There's also a version that uses your ST's internal sound chip and a sample drum machine program. It's easy to get to grips with – it's all mouse and menu driven. The program is in English, but the documentation is all German – so you need to get a friendly German to translate it for you or spend a while figuring it all out. Only three channels, too, so not quite *Quartet* on the cheap.

***STF* RATING – 65%**



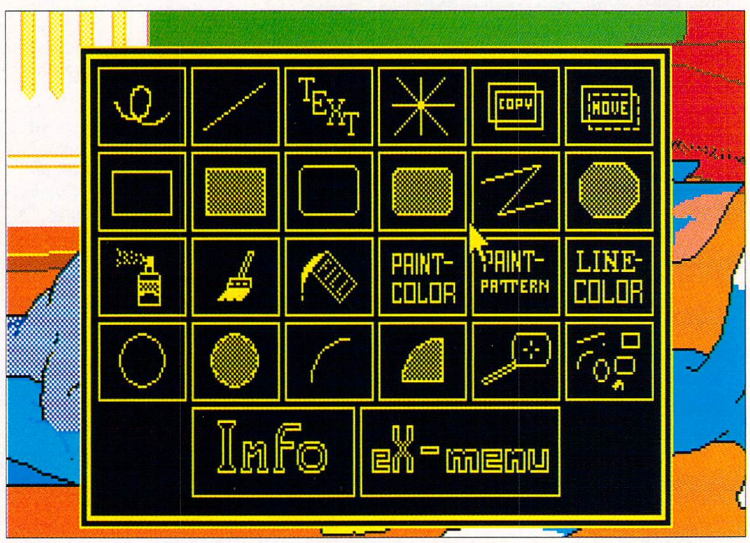
● *Sound Machine* comes with a few rather weird sounding sample songs to have a look at. The display is excellent, using standard musical notation. Doesn't sound too bad, either. But you can only listen to the tunes, not use them any other way.

MASTERPAINT

Seven Disk – Disk 107

An art program with loads of functions. *Masterpaint* works in all resolutions and you can even convert pictures between different resolutions using dither patterns. It has the standard range of drawing tools, such as brushes, various types of line-drawing, circles and boxes and a definable spray can which sprays little dots of colour onto your screen. There are also some swish block distortion effects and user definable fill patterns. You can select the style and size of text too, although you're stuck with one font. The instructions are in German, but the program menus are all in English. With all these features, *Masterpaint* would be one of the best PD art programs if it wasn't so prone to crashing.

***STF* RATING – 62%**



● The main drawing effects in *Masterpaint* are available from this pop-up menu. Click on "eX-menu" to get at a GEM menu with another wealth of options. The manual is German, but these are easy enough to work out. Pity it's so unreliable.

THE BUZZ

Want a disk crammed full of all sorts of PD? Buzzbox produce just such a disk every month. All the programs are compacted in one form or another, so each holds about 1.3MByte of stuff – that's nearly two disks' worth. *Buzzbox* costs £2 an issue and is available from Buzzbox Computing, 5 Balmoral Road, Moorlands, Lancaster, Lancashire LA1 3BT.

BUZZBOX ISSUE 20

AIM – The Atari Image Manager, a complex and powerful image processor. Load in a picture and you can perform all sorts of flash algorithms and end up with – er, a mess, usually. There's plenty of documentation with it, so maybe you can learn to do something more useful. However, it needs patience to get the most from it.

FIREWORKS – Just a bit of fun, really. Sends streams of coloured pixels flowing across your monitor.

MODEMECH – Simple comms program for setting up your modem – dead easy to use and fairly basic.

FRANGLAI – Comical mix of English and French, supposedly educational but quite fun, too. Et tres simple pour le beginner.

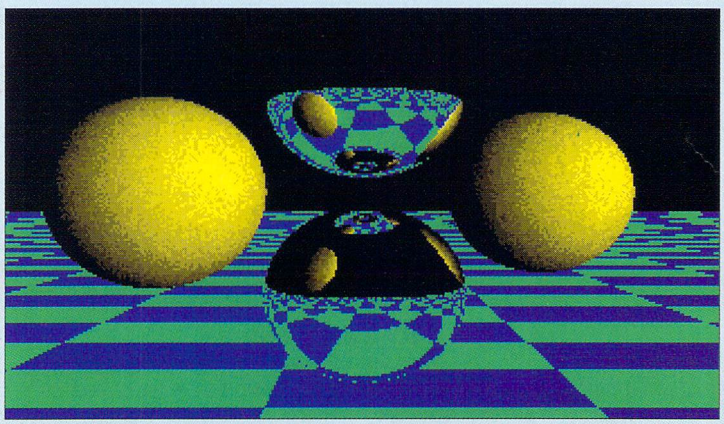
PERSONAL DATABASE DEMO – Demo version limited to ten records of Bay Computers' Personal Address Book program. Good if you're thinking about getting one, bit pointless if you're not.

SPINNING BALLS DEMO – Nice little ray-traced demo of – er, spinning balls. You might watch it for all of two minutes. Pretty, though.

KIDS – Two very basic ST BASIC educational programs. Picture recognition and word recognition. Should keep the kids quiet for five minutes.

PLANETARIUM – Probably the best of the bunch. You can view the stars and planets from anywhere in the world at any date. Has a database of information – just select an object for a brief description.

OVERALL *STF* RATING – 67%



● **Nice little animation of that old favourite, ray-traced balls. *Buzzbox* is a right potpourri of proggies. Something for everyone on each issue, doubtless. Could be a little more selective, though.**

HOT TOP TEN

Now then, now then, ladies and gentlemen, what we have here is Caledonia PDL's top ten, you see. Megadocious-type thanks go to Jake Bain at Caledonia for this chart-type compilation thingy.

1. RIPPED-OFF'S HUNDREDTH TITLE DEMO EXTRAVAGANZA – Disk RIP 100
Compacted collection of demo screens including *Life's a Bitch* and the *Swedish New Year Demo.*

2. FINANCIER FINANCE MANAGER DEMO – Disk AU 121
Demo version of the commercial package, with Save option disabled.

3. HYPE! DEMO – Disk AU 99
A demo version of the multi-media package that links text, graphics and sound. This is the colour version.

4. PAGESTREAM FONT EDITOR – Disk DTP 12
Complete font editor from the makers of *PageStream.* Not suitable for version 2's fancy new scaleable fonts, though.

5. STUPENDOUS DEMO – Disk D 101
Latest mega-demo from the Pixel Twins. Includes a defender game with stereo sound and some of the fastest scrolling you're likely to see.

6. RIPPED-OFF STE DEMOS – Disk RIP 96
Another collection of demos compacted onto one disk by the Ripped-off crew. Lots of STE stuff, loads of colours, stereo sound and hardware scrolling.

7. PAD – Disk AG 69
Comprehensive mono drawing program from Germany

8. FESTIVE CLIP ART – Disk CLIP 16
A collection of festive crimble-type art in high-res *Degas* PI3 format.

9. ESION STE TRACKER – Disk STE 21
Latest in a long line of four channel tracker programs, this one takes advantage of the STE stereo sound chip.

10. PERSONAL DATABASE PLUS DEMO – Disk AU 131
Demo of this simple, but powerful, database. As used by Caledonia PDL itself.

The *FORMAT* PD directory

● **Where to go for Public Domain software – demos, games and utilities for around £3 a disk (or even less)! If you write to any of these PD libraries for a catalogue, remember to enclose an SAE.**
● **Budgie games are available from all PD libraries indicated by a (B). Simply mention the disk number (above the review) when you order the disk.**

SOUTH OF ENGLAND

Arrow PD, 6 Kents Orchard, Perry Street, South chard, Somerset TA20 2QB

Atari Advantage, 56 Bath Road, Cheltenham GL53 7HJ ☎ 0242 224340

Awesomedemos, 3 Mason Road, Seaford, East Sussex BN25 3EE

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C. Hacks PDL, 19 Latimer Drive, Laindon, Essex SS15 4RD ☎ 0268 416888

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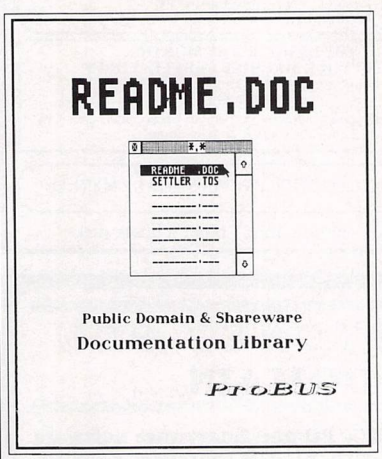
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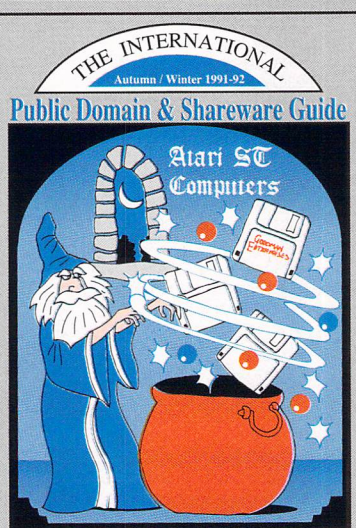
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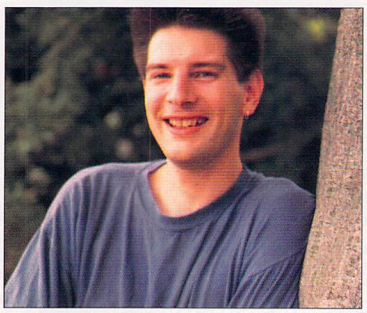
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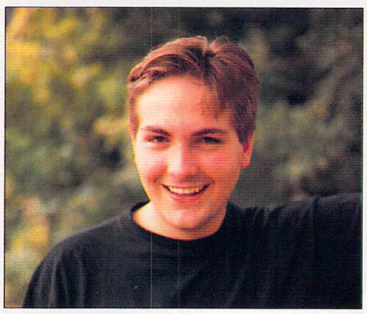
SCREENPLAY

There are a few changes to Screenplay this month. The word "birthright" is banned, and reviews must now contain at least two references to Ogden Nash, the famed poet and wit. Radical, we know, but *FORMAT* is never afraid to take chances. So remember: two's a crowd, but three's slightly more

THE *ST FORMAT* REVIEWERS – desperately seeking sanity, or a reasonable approximation



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Neil wrote his first story at the age of five. By the time it was six, it had grown two novellas, a pamphlet and a postscript.



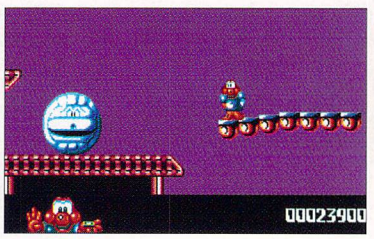
JAMES LEACH
Crunchy nut clusters dipped in honey and then basted for two hours over a slow flame. Serves two, destroy all materials after use.



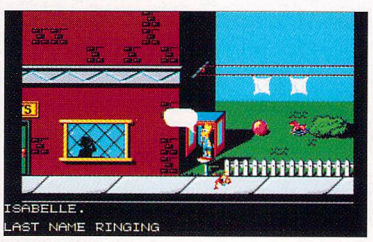
ED RICKETTS
Dazed, bewildered and brought up by wolves, Ed has the rather dismaying habit of leaving out the vowels in his sentences. Strnge mn.



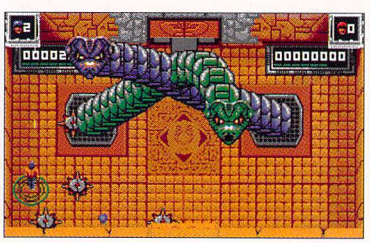
CLASSIC GAMES
Look at all those sexy ads for those fabulous games! Don't you just want to rush out and buy them all? Of course you do. Just don't blame us if you haven't read Classic Games, your guide to the best ST diversions around.
page 53



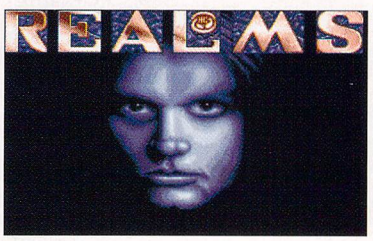
ROBOCOD
Fish can be dangerous, too, y'know. A wet cod to the head is no joke. Plaice-slapping is a federal offence in Bavaria. The things you can do with a well-honed sturgeon don't bear thinking about. Believe us, you don't want to meet *Robocod* in a dark fishtank.
page 56



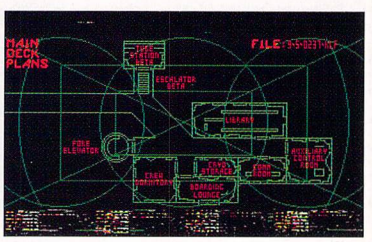
THE SIMPSONS
Smart alecs will tell you: "Yes well actually I saw The Simpsons on The Tracey Ullman Show *yeeeaaaars* before they were famous." Discreetly remind them of the full horror of what they're saying. Tracey Ullman! Oh dear.
page 60



SMASH TV
Do you really want to live in the future? It's such a violent place. Ooh it makes us so angry – we want to *smash*, to *destroy*, to *cover ourselves in the blood of innocents* – er, well, we could just watch some telly instead.
page 65



REALMS
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page 66



SUSPICIOUS CARGO
"Anything to declare, sir?" "Yes. I am a free-thinking individual who has as much right to be in this world as anyone else. I enjoy choccy biscuits. Mercury is closer to the sun than the earth. 'Humour' is spelt with a 'u,' but 'humorous' isn't. Enough?" "Fine, sir. Have a nice trip."
page 69

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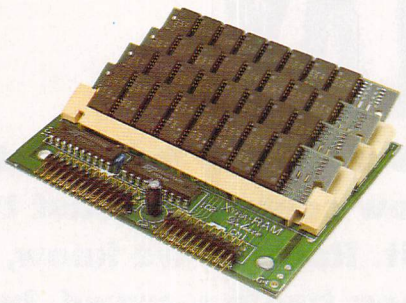
STF REVIEW POLICY

- It is *ST FORMAT* policy to review only completely finished games – that is, the games you could actually buy in the shops – never incomplete or demo versions
- We review *all* games released, but *only* when they're finished. We won't be rushed into reviewing unfinished games to beat our "competitors"

● *MAGIC POCKETS* – THE PROGRAMMER'S OWN GUIDE ● BEAT *CADAVER* – THE PAYOFF ● OVER *65* GAMES CHEATED ● PAGE 85

Choosing a memory upgrade for your Atari ST just got easier!







Once Frontier's Xtra-RAM *Deluxe* is installed in your ST, you can upgrade in stages to 4MB whenever you like - it couldn't be easier. Includes a two year guarantee and a no-quibble ten day money back offer.

Is your ST always running out of memory? Frontier Software's new Xtra-RAM Deluxe is the easy to fit and simple to upgrade memory expansion that you've been waiting for.

Thousands of ST users have already upgraded their STs to 1MB or 2½MB using the original Xtra-RAM in their homes and offices without having to send their computers away. Now Frontier, makers of the original Xtra-RAM, introduce their new memory upgrade - The Xtra-RAM Deluxe.

The experience, quality and expertise that went into the best selling Xtra-RAM has been applied to the new Xtra-RAM Deluxe. The Xtra-RAM Deluxe will upgrade your Atari STFM to 1MB then 2½MB and then 4MB with easy to install SIMM memory cards. Your Mega 1ST can be upgraded to 2MB and then to 4MB. Mega 2STs can be expanded to the full 4MB. Once the Xtra-RAM Deluxe is installed in your ST, you can choose when to upgrade further - you simply change or add SIMM boards - just like the ST^E. You can even use these SIMM boards if you later upgrade to the ST^E.

Easy To Fit

Installation of the Xtra-RAM Deluxe couldn't be easier. Following the instructions laid out in our simple to follow manual which is written with the non-technical reader in mind, you disassemble your STFM or Mega ST, plug the Xtra-RAM Deluxe into two places inside your computer and reassemble it. The whole process takes around 1½ hours and most STs will not require any soldering whatsoever.

The Xtra-RAM Deluxe fits all MMU chips (including the 100109) whether they are soldered down or not. If your ST has a soldered down Video Shifter chip or a 101601 type MMU then some soldering will be required. You can do this soldering yourself or Frontier or your dealer can do it for you for a small extra charge. If your ST has a socketed Video Shifter chip and an MMU which isn't the 101601 type, then you can fit the Xtra-RAM Deluxe without any soldering whatsoever. If you need any further explanation of this, contact Frontier direct.

No Need To Stop At 1MB or 2½MB

Most memory upgrades for the Atari STs will give you a simple upgrade to 1MB for about the same price as the Xtra-RAM Deluxe. Some of these upgrades may be as easy to fit as the Xtra-RAM Deluxe, but they do not allow you to expand your ST further. Once the Xtra-RAM Deluxe is installed in your ST, all you have to do to upgrade further to 2½MB or 4MB is install extra SIMM memory cards into the empty sockets on the Xtra-RAM Deluxe. This is a very simple process which takes less than ½ hour.

Don't restrict yourself to just 1MB. Make sure that you choose an upgrade, like the Xtra-RAM Deluxe, which can grow with your needs.

Totally Compatible

The extra memory that the Xtra-RAM Deluxe gives your ST is totally compatible with all of your ST programs. The ST's memory controller chip logs in the extra memory and makes it available for your programs. You will automatically get extra memory for DTP, word processing, MIDI, running the Atari Laser printer and everything else that you use your ST for.

Software Included

Each Xtra-RAM Deluxe upgrade is supplied with free RAM disk and printer spooler software and a free RAM testing program so that you know with certainty that your installation has worked.

Satisfaction Guaranteed

The Xtra-RAM Deluxe is supplied under Frontier's ten day money back offer - if you aren't satisfied with the Xtra-RAM Deluxe for any reason you can return it to the place of purchase within ten days for a full refund (participating resellers only). The Xtra-RAM Deluxe also carries a full two years' guarantee. The Xtra-RAM Deluxe is designed and manufactured in the UK. Unlike some ST upgrades, Frontier guarantee that each Xtra-RAM Deluxe uses only brand new SIMM memory boards - making your ST and its memory upgrade more reliable both now and in the future.

Prices

Frontier supply the Xtra-RAM Deluxe in four ways:

New Lower Prices!!

- Xtra-RAM Deluxe Unpopulated (without memory) £34.99
- Xtra-RAM Deluxe ½MB upgrades your 520STFM to 1MB (can later upgrade your STFM to 2½MB and then 4MB) £64.99
- Xtra-RAM Deluxe 2MB upgrades your 520STFM, 1040ST to 2½MB, Mega 1ST to 2MB or your Mega 2ST to 4MB (can later upgrade your ST or Mega 1ST to 4MB) £109.99
- Xtra-RAM Deluxe 4MB upgrades your 520STFM, 1040ST and Mega 1ST to 4MB £179.99

Please add £3.00 postage and packing to all orders under £120.00. All prices include VAT. Frontier accepts payment by Visa, Access, cheque or postal order. Prices subject to change without notice. Goods subject to availability. Specification subject to change without notice.



Designed and Manufactured in the UK. Frontier also manufacture memory upgrades for the Atari ST^E.

Available from your local dealer, or direct from:

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P.O. Box 113, Harrogate, North Yorkshire England HG2 OBE. Phone (0423) 567140/530577. Fax (0423) 522874.

CLASSIC GAMES

What on earth is a shoot-'em-up? What's so thrilling about platforms? What's the point of playing a god-game – surely you'll win no matter what? Ed Ricketts introduces some of the best games of each genre and explains the finer points of gamespeak



● **Whether you're a hardened ST gamester or just an occasional player, you need to know which games are *really* worth your attention. *ST FORMAT* can help!**



SHOOT-'EM-UPS

A loose definition of a shoot-'em-up might be any game where you have to shoot (aha!) or destroy the enemy in some way. Shoot-'em-ups are generally fast, noisy affairs, which rely more on your skill and speed with the joystick than on your brainpower. Many games – though not on the whole classed as shoot-'em-ups – contain elements of this genre. Most platform games involve a considerable amount of shooting, as do some flight sims and even some adventures. But you can generally rely on the term being used to describe games where you control some sort of vehicle on a horizontally or vertically scrolling screen and where the main aim is just to destroy the enemy.

LLAMATRON

Llamasoft (☎ 0734 814478)

The purest and best example of a shoot-'em-up you can find – and it only costs a fiver. The aim of each level is simply to blow away all the aliens and reach the next. You play a llama, packing some heavy firepower. Each level begins with a screenfull of aliens, some immovable nasty objects and other llamas wandering around. Blast the aliens, collect the llamas for bonuses and avoid (or shoot) the static objects. Bonuses also crop up from time to time.



Llamatron is written by the king of the arcade blast, Jeff Minter, and is Shareware (see page 45 for what this means) – if you like it, you should send £5 (or more, if you like) to Jeff. *Llamatron* also appeared on *ST FORMAT* Cover Disk 24 – for details of how to get that issue if you missed it, see page 142.

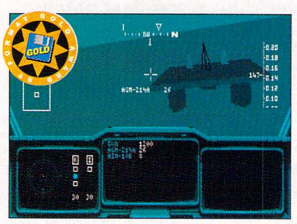
***STF* Rating – 95%**

THUNDERHAWK

Core Design

Ostensibly a flight sim, but it involves much more GBH than ETA. Taking control of a fictitious super-helicopter, you are dispatched to various areas around the world to help sort out their "political problems" – by bombing and shooting the enemy off the map.

The 'Hawk is easy to fly and entirely mouse-controlled, leaving you to concentrate more on the shooting than the flying, though fancy manoeuvres are still possible. The world is seen with an incredibly fast 3D display from inside or outside the cockpit as you and the enemy throw missiles and bombs at each other. The feeling you get from strafing a SAM (Surface-to-Air Missile) site with just your cannons from the external view is nothing short of exhilarating.



***STF* Rating – 91%**

XENON 2

Mirror Image

This was one of the first classic shoot-'em-ups for the ST and the game that made the Bitmap Brothers' name. It was its graphical style more than anything which made the game such a hit – it looked and played just like an arcade game, because of its high-gloss graphics, booming sound effects and biting gameplay. As the ubiquitous spaceship, you travel up a vertically-scrolling screen, raising hell with the aliens and once again meeting a huge alien at the end of each level. Power-ups can be collected to boost your guns. It's smooth but sharp, rock hard and very playable.

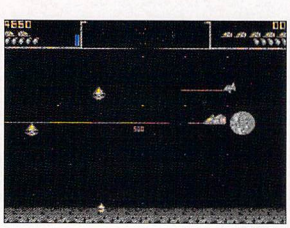


***STF* Rating – 90%**

DEFENDER 2

ARC

This Jeff Minter conversion is a fast, furious and faithful re-creation of the original arcade game, concentrating on speed and gameplay over fancy graphics. You take command of a ship which flies above a scrolling landscape upon which little people live. Your job is to stop the invading aliens from taking the people and making them into aliens like themselves, and, of course, you do this by shooting everything you can lay your lasers on.



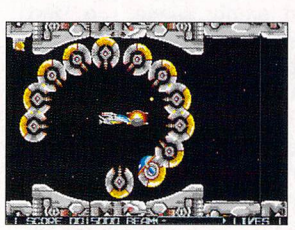
The graphics are quite small but very fast and the sound captures the excitement perfectly. The best conversion of *Defender* ever done on the ST (and probably any other micro, for that matter).

***STF* Rating – 88%**

R-TYPE

Activision

This is a brilliant conversion of the arcade original, keeping its graphical style and tough but fair gameplay. The plot can be summarised as "destroy." In your spaceship you whizz across eight horizontally-scrolling levels, blasting everything the enemy can throw at you and meeting the big cheese alien at the end of each level. Power-ups in the form of extra and better weapons can be collected from some shot aliens to help you along.



And that's it. Pure action all the way, with all the classic ingredients of a great shoot-'em-up: busy screen, great graphics, blaring sound and gameplay that grips you harder than a Publisher grips his wallet.

***STF* Rating – 79%**

PLATFORM GAMES

Platform games usually involve an awful lot of platforms and jumping about. The playing area is made up of horizontal stages – the "platforms" – joined (or not, as the case may be) by ladders or similar contrivances in a labyrinthine way. The aim of the game is generally to collect objects lying in awkward places around the area, as well as trying to find a way out to the next level. These objects might be necessary to get past barriers in order to escape from the level, or they may just be bonuses. Droves of nasties inhabit the platforms too, getting in your way and taking your energy. In most games you have, or can collect, some sort of weapon to get rid of these enemies.

THE KILLING GAME SHOW

Psygnosis

Playing a contestant in a futuristic game show, you must leap about the platforms in the Pit of Death, collecting keys to enable you to get past the obstacles barring your way to the exit. A deadly liquid continually rising from the bottom of the pit which must be avoided at all times. HALFs (aliens) are seen to with your laser, which you can upgrade by collecting other weapons from caskets around the platforms. The game's tough, with excellent graphics and sound and addictive gameplay.



***STF* Rating – 90%**

MAGIC POCKETS

Renegade

A platform game with cutesy overtones. The Bitmap Kid is lost in his own huge pockets, so over four massive levels he has to battle his way past the monsters by throwing whirlwinds, clouds, ice or snowballs at them. These weapons act in different ways on each level, so you have to vary your style of gameplay between levels. Along the way there are plenty of bonuses to collect and lots of secret gameplay tricks to discover. A brilliant game with attractive graphics and captivating gameplay.



***STF* Rating – 90%**

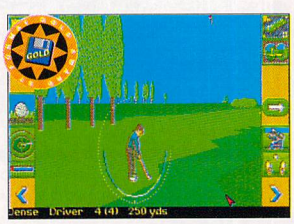
SIMULATIONS

As you might expect, a simulation attempts to recreate something from the real world on the ST screen. The most common form is undoubtedly the flight sim, which tries to simulate the experience of flying in a plane, usually combined with some form of combat. There are scores of these games about. Motor racing is also a popular theme, as are most sports. But other pastimes don't go unmissed; nearly everything has been simulated at some time or other, from golf to darts to lawnmowers, and even the London Underground.

MICROPROSE GOLF

Microprose

Golf is oft-simulated but very difficult to do properly on an ST. How do you emulate the swing of a club and the position of a golfer's hands? Microprose manage it marvellously in this sim while keeping the control systems fairly simple to learn. Everything you could want is in there: the position of the golfer's feet, the tee height, plenty of courses, a selection of clubs and – most importantly of all – realistic ball movement. You won't find a better game of golf on your ST.



***STF* Rating – 95%**

F-19 STEALTH FIGHTER

Microprose

Another superb sim from the king of sims, Microprose. In many people's opinion it's the best flight simulator you can get. It gives you an accurate simulation of flying an F-19 (or an F-117A), in a combat situation and in one of six world scenarios. The tech specs are accurate down to the last bolt, but the game is still great fun to play, even for beginners – they can use the training mode. And flight sim graphics have never looked better.



***STF* Rating – 96%**

ADVENTURE

Adventure games were originally something like an interactive story: you'd be given descriptions of a location and any objects there, and you'd type in your commands: GO NORTH, PICK UP RABID DOG. You'd solve the game simply by using the right objects in the right places in the right way at the right time. Nowadays there are very few text-only adventures around; they're more likely to be graphic adventures. These work in the same way, but instead of descriptions and typing in commands, you see the location on-screen and move your character to manipulate the objects in each location. The aim of the game is still the same, though: to solve it by using the right objects...

DAMOCLES

Novagen

Damocles usually isn't classed as an adventure, but in essence that's what it is, albeit viewed from a first person perspective on a solid 3D world. You play a mercenary, hired to stop the comet Damocles crashing into the planet Eris and destroying all life on it. The game takes place over an entire solar system as you travel among the buildings on the planets, finding the clues you need to build the bomb to blow up Damocles... It's a complicated task and there's loads to find out.



***STF* Rating – 94%**

THE SECRET OF MONKEY ISLAND

Lucasfilm

The funniest, funkiest adventure of 1991. Using a point-'n'-click interface (that is, your character's actions can be controlled entirely with the mouse) you control Guybrush Threepwood in his quest to become a pirate. The scenery graphics are splendid, the game is loaded with a lethal sense of humour, and the puzzles have you crawling on the ceiling in despair. Watch out for *Monkey Island 2*, due any month now.



***STF* Rating – 94%**

GOD-GAMES

"God-game" is a vague term, usually applied to a game in which you play some entity with the power to alter events in the gameworld. You usually start with an empty space – a landscape, world, or whatever – and build your city or empire from scratch, looking after the needs of your population but advancing your creation as far as possible within the limitations and rules set by the program. In general there are other players, human or ST, trying to do the same thing and they're out to retard your progress as much as they can. God-games can simulate real world situations and can even be used to educate people through playing them.

POPULOUS 2

Electronic Arts

Not surprisingly, the sequel to *Populous*. It keeps the same basic ideas as its worthy predecessor but adds thousands of other things to make the game ten times more enjoyable. There are more effects, better graphics, excellent sound, more landscapes, better gameplay – everything is bigger, better, more. *Populous 2* makes *Populous* look like a BASIC type-in game.



***STF* Rating – 95%**

RAILROAD TYCOON

Microprose

Building your own railway empire is the aim of the game here. Lay track between cities that supply and cities that demand, build stations according to the size of the local populace, and run the right trains for the best service. Balancing your expansion and your income isn't easy, especially when there are other tycoons muscling in on your operation. Sounds about as interesting as watching a tree grow? Maybe – but play it and you're hooked from the word go.

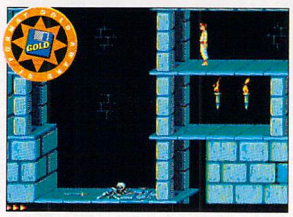


***STF* Rating – 93%**

PRINCE OF PERSIA

Domark

A game known for its fine animation. Nothing new about the plot: a Prince thrown into his own dungeon, you're out to stop the nasty Vizier from marrying your girlie. Which, of course, you do by clambering over the platforms of many levels, finding weapons to get past the Vizier's guards and potions to top up your energy. The character sprites are superbly animated (drawn from real film stills) and the game offers a real challenge.



***STF* Rating – 90%**

ELF

Ocean

A platform game for the '90s. The elf – played by you – must rescue his girlie, but can only reach her by wading through eight platform-strewn levels, and only then by finding the appropriate objects to get past the barriers. The usual load of nasties aim to stop you as you try to collect the herbs and "pets" to be able to buy potions at the shop. A brilliantly-designed game which keeps you going for ages, with incredibly colourful and detailed graphics.



***STF* Rating – 89%**

FIRST SAMURAI

Imageworks

A recent release and yet another fine example of the genre. Murder and mayhem abound as you, the Samurai, chase after the evil magician (they're always evil) who did your boss in. With your mighty sword, Patrick, you hack and slash your way through ten levels of pagodas, fiery dragons and other distinctly unamiable samurai. Much leaping about, lots of being killed and a whole load of getting lost in this game which can only be described as a doesn't-look-much-like-a-platform-game-but-it-is-'em-up.

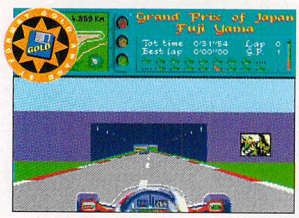


***STF* Rating – 79%**

VROOM

UBI Soft

The impression of speed is what a racing sim should offer and *Vroom* gives it to you in spades (whatever exactly that means). Just as if you were driving a real car, you need plenty of practice to master the mouse control system, but once you get the hang of it you'll find it's the only way to drive. The graphics are fast and super-smooth, and, for once, there's the beefy sound to match.

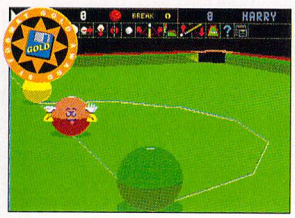


***STF* Rating – 92%**

JIMMY WHITE'S WHIRLWIND SNOOKER

Virgin

Yet another sport that's often been tried on an ST. *JW'S WS* offers the fastest, smoothest ball speed yet seen, in a perfect 3D display. The full rules of the game are observed, including some you've never heard of, and the ST opponents play a very mean game. Sound effects are the only thing that let the game down slightly, but they're a small price to pay for such a perfect simulation.



***STF* Rating – 94%**

FLIGHT OF THE INTRUDER

Mirrorsoft

A f(l)ight sim to rival *F-19*. In this game you fly an A6 Intruder in several dozen (or more) military strikes against the enemy. The Intruder isn't an easy plane to fly, and this sim doesn't make it much simpler, but it's packed with detail and procedural operations which mean you're flying as a real pilot would fly. The graphics are pleasant but not earth-shattering.

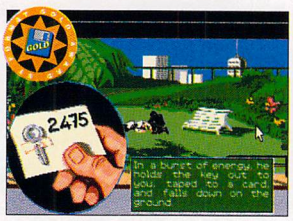


***STF* Rating – 92%**

OPERATION STEALTH

US Gold

Delphine, *Stealth's* programmers, took the point-'n'-click style interface as used in Sierra On-Line's and Lucasfilms' games, improved it, and incorporated it into *Operation Stealth*. The result was a supremely easy-to-use and intriguing adventure in which you play a James Bond type figure, replete with special gadgets, on the trail of a missing Stealth fighter. Once again, the background graphics are exceptional and the animation likewise.

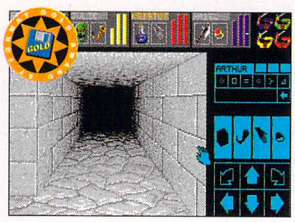


***STF* Rating – 93%**

DUNGEON MASTER

Mirrorsoft

Such was the effect *Dungeon Master* had on the ST games scene, people are still writing clones of it even now. An incredibly rich RPG, with you leading a band of four warriors into a series of dungeon levels to defeat the Great Lord Something-or-other. The dungeons consist of narrow corridors and great wide open spaces peopled with a great variety of monsters. Not only do you have to defeat these, there are devious puzzles to halt your progress and a spell system to get to grips with. Often imitated, but it remains the king.



***STF* Rating – 92%**

LOOM

Lucasfilm

This game preceded *Monkey Island,* and, while it's not as polished or as fulfilling, it uses a similar interface, making it a great introduction to the world of graphic adventures. Bobbin Threadbare is on a quest to save the sacred loom from the nasty people, and you've got to help him do it. Again, it's a case of point-'n'-click, so there's no typing. A little easy for hardened adventurers, but ideal for beginners.

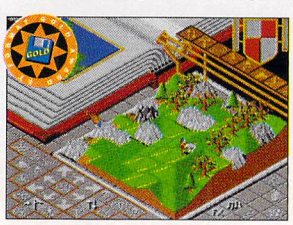


***STF* Rating – 81%**

POPULOUS

Electronic Arts

The first god-game on the ST and the one that started it all, *Populous* was incredibly innovative for its day. You play a god whose followers live on an isometric 3D landscape. You have to provide them with flat land for them to build their houses on, while contending with another god whose people also inhabit the landscape. You can both use "effects" such as swamps, volcanoes or knights, to ravage the other player's living space. Great fun, very absorbing and a true ST classic.



***STF* Rating – 92%**

SIM CITY

Infogrames

Grow your own city. Place residential buildings, commercial and industrial zones, build roads for your people to travel on, keep them content by giving them parks and lakes, make sure your industries have enough power. All this is down to you, and it makes for a fascinating and frustrating game in *Sim City*. Flawed slightly by its disappointing graphics and some annoying bugs, the game is still just as original, in its own way, as *Populous*.



***STF* Rating – 92%**

UTOPIA

Gremlin

Undeniably influenced by *Populous* (it has the same isometric 3D view, for instance), but has a style of its own. You're in charge of a small group of colonists whose job it is to inhabit a barren planet. It's your responsibility to keep them supplied with food and air, to make sure they have enough hospitals, to keep them entertained and to protect them from the other – alien – colony that's also on the planet, by producing tanks and spaceships to guard them. Absorbing, if a little difficult.



***STF* Rating – 90%**

JAMES POND 2 – CODENAME ROBOCOD



● **Crass jokes, corny characters and tacky, tacky tie-ins make *James Pond 2* a very odd game indeed. If you value your sense of humour, beware – this game stretches it (and you) to the limit.**

Pond is back, and this time he's a fish out of water. Neil Jackson dons his scuba gear and flaps around helplessly looking for the beach

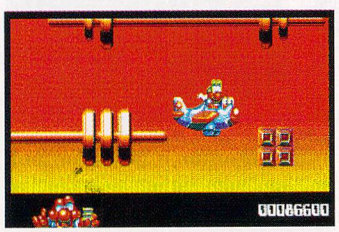
Fish-faced special agent James Pond once again goes head-up with the infamous Dr Maybe, who has infiltrated a crucial, top-secret installation at the North Pole. This base is the key to world peace, harmony and tranquility – and Maybe is out to turn it against us. And just what is this all-important installation? A launch site for nuclear missiles? A big underground base like the one you always find at the end of the *real* Bond movies just before it gets torched? Nope. It's far more important than any of those – it's a huge toy factory owned and operated by a mad philanthropic recluse known as Santa Claus.

But it doesn't end there. The warped and twisted Dr Maybe has sabotaged an unknown number of toy penguins by wiring them up with explosives. If you're not able to locate and defuse all the penguins before they're shipped out for the festive season, then Christmas Eve is going to look like Fireworks Night. Responsibility-city, or what?

It was this time last year that Millennium surprised everyone with the forerunner to this – off-the-wall cutesy *James Pond – Underwater Agent*. For a corny idea, it turned out rather well, providing a much-needed boost to the flagging idea of platform games. In the best Cubby Broccoli conventions, Millennium have gone for the sequel – *Codename Robocod*. Sounds even fishier than last time, but prepare to be surprised once again.

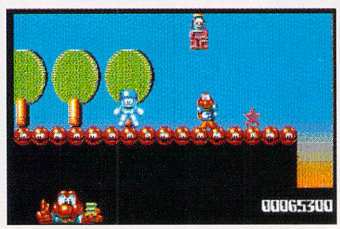
Robocod starts with a short animated sequence showing Dr Maybe's arrival at the North Pole, and a group of bewildered penguins fretting over this fact. Needless to say, they call upon you as their only hope. When you hit the <Fire> button on your joystick, you appear as the legendary James Pond. Behind you is the giant toy factory where the mad doctor is holed up.

A quick wander around the building shows that it really is pretty huge – ginormously, incredibly huge, in fact. Using your special stretchability – a method of elastically extending yourself to immense heights, known only to a secret group of fictitious fish – you can pull yourself right up to the top of the tallest towers of the factory. This stunning feat is carried out with nothing more than a simple <Fire> button click – the longer you hold it down, the higher you stretch. It's a simple trick, but a good one. Once you release the <Fire> button, your top half shoots downwards at lightning speed to the floor. It meets your bottom half with a shuddering crash and you're ready to waddle off on your fins again.



● **Hidden away in a secret box on Level Two, you find an aeroplane. Jump in and you can fly right over the heads of Dr Maybe's nasties.**

Once you've used the stretch a bit, you find it has a side effect which can come in very useful. On your stretch upwards, you may come up against platforms and ledges that prevent you from going higher. Instead of just banging his head against the bottom of the ledge, Pond reaches up and grabs it. Let go of the <Fire> button and his lower half rockets up and he pulls himself together. Now you're hanging from the ledge, where you can sidle along with a hand-over-hand monkey climb by moving the stick sideways. Another simple trick, but one that adds a new twist to the platform game genre and really opens up the gameplay possibilities.



● **This weird blue glove-creature is another of Maybe's nutty henchmen. Wonder where the other finger is, though? Dunnit make you wince?**

Once you've got used to controlling Pond, you can start your mission in earnest. There are nine main missions plus an unknown number of secret missions and bonus quests that you can tackle. The main missions are easy to find – you just work your way up the toy factory and enter each door in turn.

The warped and twisted Dr Maybe has sabotaged an unknown number of toy penguins by wiring them up with explosives

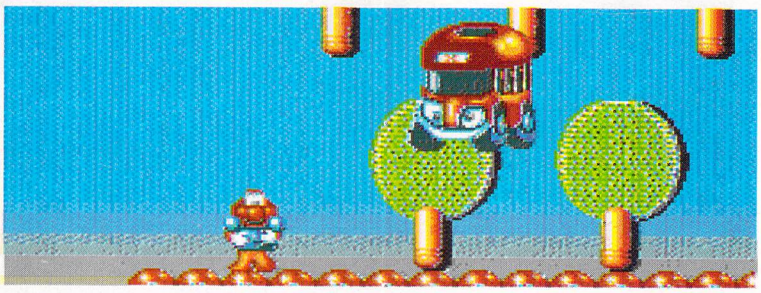
To complete each mission, all you need to do is find the explosive penguins and run into them to defuse the explosives. It sounds simple, but it's usually a lot more complex. Each mission features its own playfields – generally at least three per mission – and they're as mind-numbingly huge as the toy factory.

On your way, you meet all sorts of problems – fin-pecking birds, Bertie Bassets with attitudes, and strange Rubber Glove-men who walk on their fingers. But these are just the nasties – there are loads of other problems, too. Much of the time, you're looking for a way around the precariously-built platforms and ledges. More





● ***Robocod*** **is a bizarre game – not only can you stretch yourself to a height of around 300 feet, but there are also deadly Bertie Bassetts to beware of. One false move and you're in all sorts of trouble. (I'm sorry, I couldn't resist it.)**



● **We've all gone up against some crazy monsters in our time, but a bus? C'mon, now, this is all getting far too silly. I wouldn't normally mind, but you sit around for hours waiting for one, and then hundreds turn up all at the same time. Typical.**

often than not, you need to jump into nowhere and hope for a nearby platform to steer yourself onto – a real blind leap of faith. Falling off is scary – the long drop passes by *very* quickly and can really make your stomach flip if you weren't expecting it.

Robocod is full of neat little bonuses and hidden surprises. Every level is stuffed full of pick-ups: umbrellas for floating down slowly, extra power for your steel *Robocod* suit, extra lives and even a pair of wings. If you search hard enough, you may even find a complete aeroplane which you can fly around the entire playfield in.

Protecting your weak, fish-like exterior is something you really need to master very early on. Your Robocod suit is heavy and solid, and it can withstand the greatest of tumbles. It has more of a problem with the monsters. When you're attacked by one of Dr Maybe's evil creatures, your suit takes the impact, but not indefinitely. Each attack knocks off one of the green power bars that the fish-head in the corner of the screen is holding. When they're all used up, you're down to just your own scales for protection – next hit and you're dead! To re-boost your suit, you've got to find the special stars which are scattered around each level.

The suit has a second mode which you can use for more offensive manoeuvres. Just leap up by pushing the joystick into the diagonals and, while you're still airborne, compress yourself into a little power-ball by pulling back on the stick. If you make contact with any monsters on the way down, you're as safe as houses – but the monster is usually dead meat. Once you've mastered the technique, this method of attack really helps to prolong your life as well as safeguard you through each massive level.



● **The trouble with being a super-agent is all the hanging around you have to do. You can't relax for a moment or you feel a right, er...**

VERDICT: *Robocod* is proof that there's life in the old platforms-and-ladders dog yet. Its simple control method can be mastered in seconds, but it's loads more interesting than almost any other platform game. Millennium's neat stretch-mode idea makes the job of hunting for ladders a thing of the past – you can go up wherever you want. But the thing is, Millennium have had to ramp up the gameplay to accommodate your new abilities – you could complete *Gods* in seconds if you could just heave yourself up to the top of the playfield as easily as you can in *Robocod*.

Each mission has been designed well, with an emphasis on making you think before you leap. Your skill and dexterity are just as important as they ever were, but now you've got to explore much more, just so that you can figure out the way to the imminently exploding penguins. Exits and bonus rooms are scattered far and wide, sometimes even hidden completely, so you can spend hours just mapping out each level to find all the special bits. There's no shortage of things to do – and you can return to the same bits time and time again, only to find something new.

On your way, you meet all sorts of problems – fin-pecking birds, Bertie Bassetts with attitudes and strange Rubber Glove men

So get out there and get flapping, fish-face, 'cos this game's got the lot – tench-ion, secret plaices and perches galore – it's rudd-y amazing.

NEIL JACKSON

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- Makes *Rainbow Island* look like a game for wimps – *Robocod* is full of dynamic action and dangerous stunts
- If you liked *James Pond – Underwater Agent*, then you'll love this to bits – it's bigger, better, faster and funnier
- Huge playfields and backdrops, and loads of them – it's even bigger than *Gods*
- Simple graphics and ST sound don't detract from the main event – the gameplay. It's better than any other platform game you've seen before.

STF RATING 86 %



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BART SIMPSON IS THE SOCIO-ECONOMIC PROJECTION OF

It's reet daft, this game. In the first level, the aliens are after everything and anything purple for their death-bringing mega-invention, so it seems a pretty logical step to go round the town and change all the purple somethings into other-coloured somethings by any means

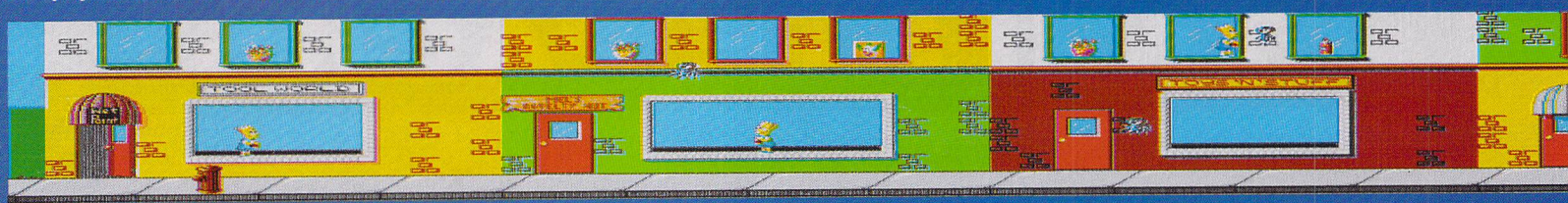


● Start here. Go right and collect the spray can a bit further on, then come back and spray the bin. Proceed rightwards.

● The poster must also be sprayed by jumping up, but avoid the monsters. The times on the other poster are clues...

● Moe's seems useless at first, but find a coin or two and you may get some useful results from the owner.

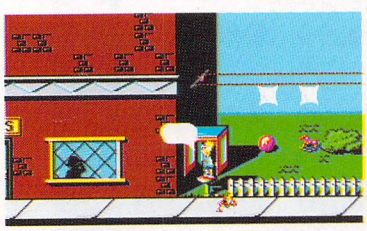
● Find ledges to jump onto to spray the flowerpots – try everywhere since they're not always obvious.



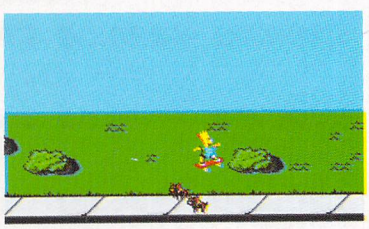
● You might find something Tool World has to offer is useful on that fire hydrant – notice the wet paint.

● The Novelty Hut is definitely worth a visit – they sell useful things like cherry bombs and rockets. You'll need 'em.

● If you have money left by this point, go on a spree in here. Use the window at the front to get the extra spray can, too.



● Giggle giggle. Bart takes time out from painting the town red to do the old "Is there anyone there by the name of Isabelle Ringing?" gag. It's an old chestnut but it still brings a tear to the eye. (It's also useful for bumping up your Goal total.)



● Think this is what is described as "radical," or has that word gone out of fashion now? (How about "comfortable," as in "Yo! That's really comfortable!" Sounds good to us.) Bart gets his ass in gear on his skateboard.

THE SIMPSONS:

Bart is eight. Bart has a serious skin problem. Bart incessantly mumbles about cows and shorts. Bart is a multi-millionaire megastar with fans the world over. None of these things apply to Ed Ricketts. But is Ed jealous of Bart? Does he care? Hell, yes

Next time you see that friend (everyone has at least one) who's mad about *The Simpsons* – he's got the key ring, the T-shirt, the album, the condiment set, and so on – ask him if he's ever actually seen the darn thing. Then quietly exit as he/she makes his/her excuses.

The point is, *The Simpsons* have become legendary without most people actually knowing what the heck they are. Which means that Ocean can hardly fail with the Simps ST game, good or bad. So what's it all about?

The Simpsons, a family virtually ruled by its errant younger member Bart, live in yer everyday American smalltown, Springfield. You know the sort of thing: corner stores, signs with "Don't Walk" on them, and invading mutant aliens. These aliens are gradually taking over the people of Springfield while building their death machine which will destroy the world.

So far, so normal. The odd thing is that, for some reason, only Bart Simpson is able to stop these marauders.



Even odder is the way in which he does it. The aliens need to collect certain items for their machine: purple things, hats, balloons, power rods and exit signs. (Exit signs. Oh dear.) So, in each level it's Bart's job to collect, change or remove these items from various areas around Springfield to spoil the aliens' plans.

Thus, in Level One of this horizontally-scrolling arcade puzzle, equipped with a spray can, you should find 24 purple objects and turn them

I CAN SEE THROUGH YOUR SMILE

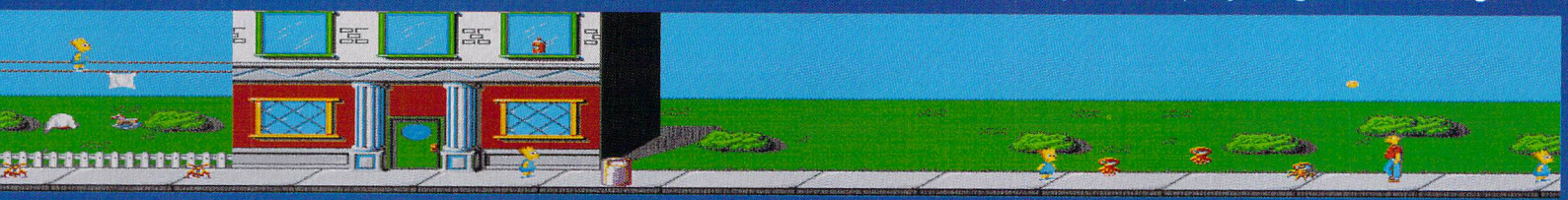
The aliens have already taken over some members of the Springfield community. The only way of telling which of the seemingly innocent people strolling around are non-human is to use your X-ray specs. If they are indeed revealed as scum-sucking commie alien deviants (you can tell by their weird heads), you should jump on them quick. This releases the alien, which scuttles away, leaving you with a token.



● Each token collected adds another letter to the name of whichever member of the Simpson family is displayed in the bottom left. When you have all the letters, that Simpson joins you at the end-of-level alien and helps you fight it.

THE FEARS OF AN ANGST-RIDDEN GENERATION. DISCUSS.

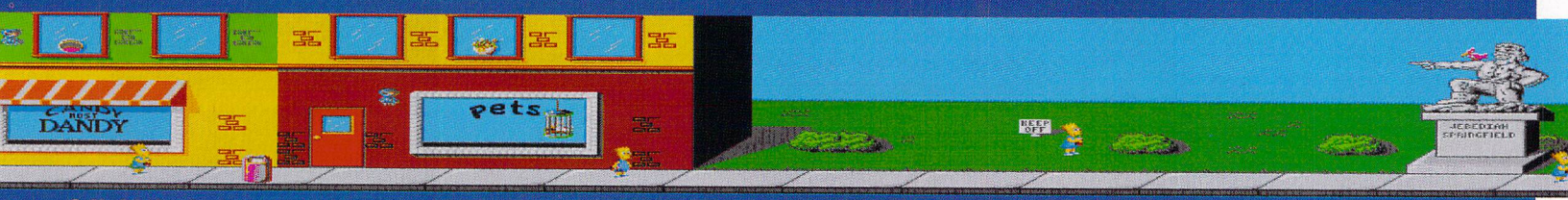
possible. These methods include leaping up high to spray posters, vaulting onto ledges – ignoring your fear of falling onto the ground and breaking your neck – and generally incurring the wrath of the local population. But don't worry about that, they'll be grateful in the long run.



● Nip up onto the washing line and walk over the sheets to cover up the pink toys in the garden below.

● Spray the bin, and keep going right. Jump at the bushes to release a coin (and a bee) or two.

● More bushes, more bonuses in the form of coins. As ever, continue right, spraying everything pink.



● Aha! A tin of paint in that window. Wouldn't it be good if you could get it to spill on to that pink canopy somehow?

● There's a pink bird in that window. How can you get it out of its cage? It might just be something to do with those cherry bombs...

● Jump onto the grass to incur the wrath of the park keeper. As he walks by, spray him – then run away!

● Jedediah can help you lots if you're nice to him – that bird looks promising... and so on.

BART vs THE SPACE MUTANTS

Bart swaggers along with spray can poised and you just want to smash his smug face in

red. Some of them can just be sprayed, others prove more difficult to change. So, you need to use the objects you can find or buy to help you out. Coins tend to pop out of bushes when you jump on them (but then you knew that).

Changing the colour of objects is usually a matter of (a) working out how to reach them and then (b) timing the necessary movements to avoid any aliens who are in the way. Much ledge-clambering and acrobatic bounding is required, plus a sharp eye and a bit of brain power.

The aliens are actually a bit crap, because most of them just sit in the street or wherever and bounce up and down a bit. This does mean you have to be careful how you tread, though – you get three lives, but two chances at each life, so, er, that's six lives. Bear in mind the time limit, too – it seems long at first, but then, so did three hour exams before you realised your entire future depended on them.

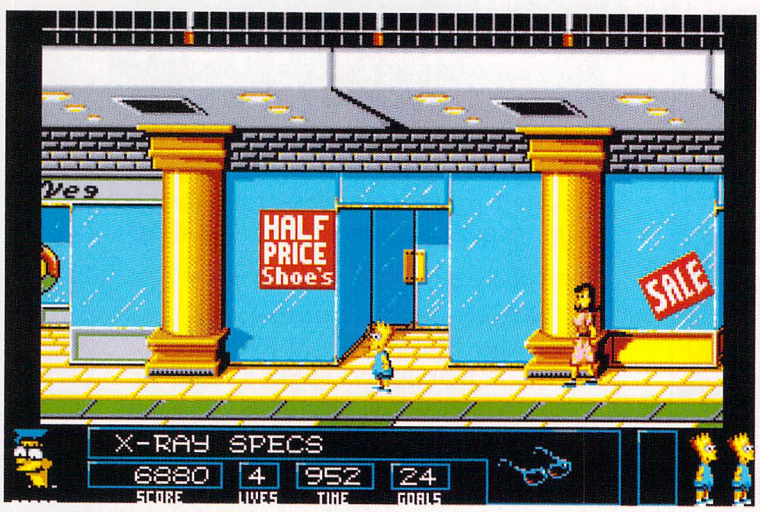
Surprising thing number one: Bart Simpson looks like Bart Simpson. A very small Bart Simpson, but him nevertheless. He swaggers along with spray can poised and you just want to smash his smug face in – that's how faithful a recreation he is. The other Simpsons only put in a few guest appearances, so it's Bart's show. Other graphics are reasonable but not respiration-grasping, though they do keep to Matt Groening's weird style remarkably well. Sound is desperately, awfully, horribly bad, even by ST standards – an incredibly pathetically dreadful tune wibbles and warbles away in the background just as if it's been tacked on at the very last moment. There are no samples at all and approximately three spot effects. It makes you want to weep, it really does.



VERDICT: The usual rule is – the bigger the licence, the worse the game. By that axiom, *The Simpsons* really ought to be the direst game which has ever been released. But it's not, really. Neither is it the next *Populous 2*. It lies somewhere in that twilight zone of games, the stratum that's labelled "Hmmm. Okay really, I s'pose." In the pro corner, we have the puzzle elements. Some of them might be illogical but they do, at least, stop you slipping into a coma over yet another platform game. In the con corner, there are the not-very-exciting graphics, the small sprites, the *eeek!* sound and the sheer frustration of some of the more mundane timing puzzles.

But all this doesn't matter; the Simpsons have conquered the world, and this is doubtless only the first of a long string of Simpsons conversions. Just in case anyone is interested, though, this one is better than it could have been.

ED RICKETTS



● On Level Two you (or rather the aliens) are after hats. What sort of aliens are these anyway? Are they from the planet Strange or something? And look at the spelling on that poster – "shoe's" indeed. Tsk. (Purses lips in disapproval).

THE SIMPSONS: BART VS THE SPACE MUTANTS

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● A little like *Elf* in that it mixes arcade, platform and puzzle elements. *Elf* seemed somehow more vibrant, though.

● *Terminator 2* was just a convenient name upon which to hang a disappointing game. The Simpsons treats it subject matter with a little more care.

● Like *Robin Hood*, it's quite an original way to do a licence that could have been much blander.

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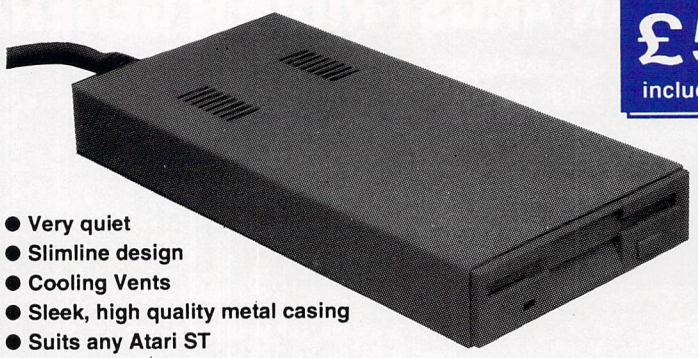
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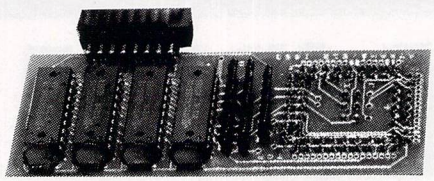
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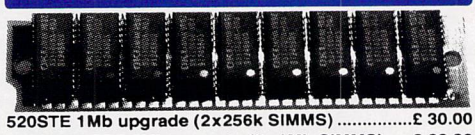
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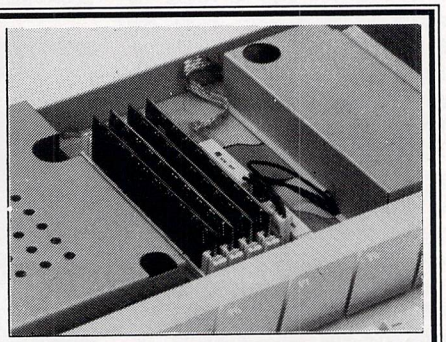
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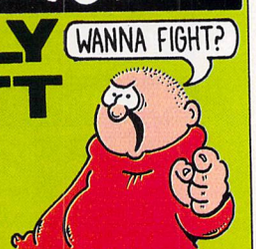


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● Cross *The Running Man* with *Robotron* and what do you get? Actually it doesn't bear thinking about – imagine the mess. Kids! Join the *Smash TV* club and get your free junior truncheon! It's small but deadly!



● Once the crowds get on top of you, you simply haven't got a chance. They just pile up and whack you senseless, and you do a sort of pathetic falling-over type movement and reappear at the door. Clever, that.

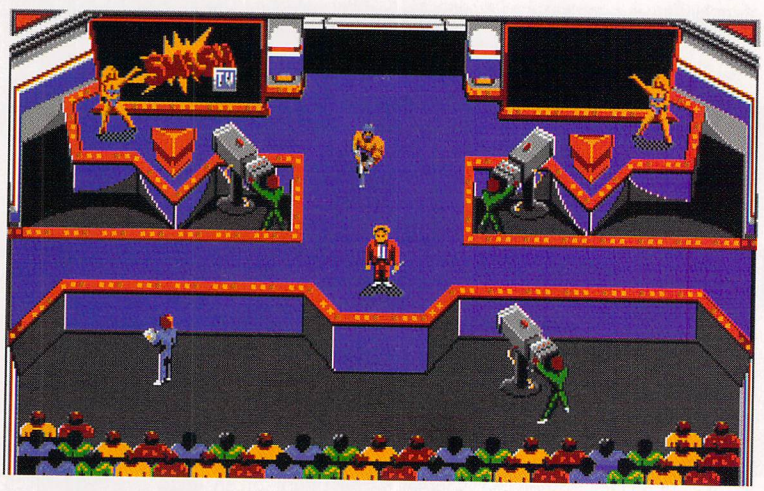


● Flying eyeballs abound when you step on a mine. Well, it's your own fault, really – the whole thing just screams, "Hey! I look just like a bonus! Why not come over and pick me up?" That'll teach you to trust appearances!



● Trick a friend into playing (they're not going to do it voluntarily, after all) and you find out how much fun it is with two people (smut not intended). They don't stand a chance with two – oh. You're dead. Ahem.

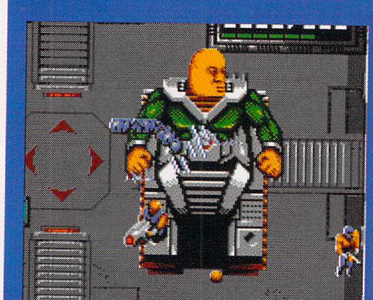
SMASH TV



● It's 1999. Leslie Crowther is dead. No, just kidding, everyone knows Leslie Crowther is immortal. That's actually Bob Monkhouse smarming at you in the middle as you prepare to be creamed in this deadly futuristic game show.

ER – IF I ASKED YOU NICELY, WOULD YOU GO AWAY?

The first commandment of shoot-'em-ups: thou shalt not reach the end of level without having a huge alien slobbering over you. Furthermore, this alien is able to do you in just by looking at you in an unpleasant way, whereas you need to hit it at least 15,000 times before it feels even slightly unwell.



● If you've ever wondered what happened to Ironside, here he is. If you think he looks menacing, you should see the bloke who wheels him about. And it's no good hiding in the corner crying, you great soft girl's blouse.



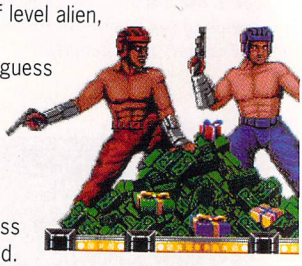
● Any resemblance to *Space Harrier* is a little bit suspect, frankly. Hit the cobras at their base and the shock waves travel right up to their heads. Be aware, however, that this does not please the cobras overly much.

Hmmm. We've seen this before, haven't we? You playing a contestant in a futuristic game show, that is. *Killing Game Show* ring any bells? *The Running Man?* Anyway, that's what's happening here.

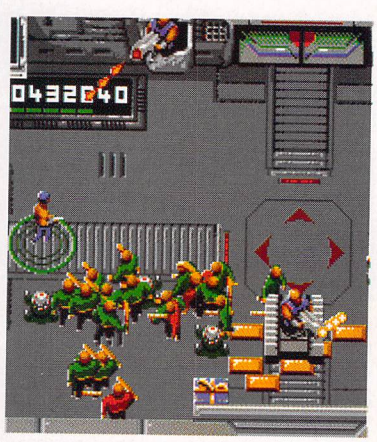
It's like this – you enter an arena (or "room" as they call them in the trade) and are immediately followed by gangs of muscled gentlemen carrying large truncheons, who proceed to follow you around. Upon meeting you, they decide it might be a good idea to hit you repeatedly on the head until you fall down.

Now, this obviously isn't what you call fun, so you're armed with a gun which, er, shoots bullets, and seems to make the other men go away quite rapidly. The more men you kill, the higher your score is (and the longer you live, naturally). Along the way you might like to pick up the pressies on the ground, which give you prizes like "a brand new VCR" or "a sleek 1990s roadster." And then there are the bonus weapons to collect. They give you triple fire, a rocket launcher, a big swirly thing that surrounds you, and other things you definitely want. They don't last long though.

Eventually, when all the men, mutants, patrolling guards, tanks and so on have been dealt with, you can move onto the next room and, indirectly, the next level – if you can find the exit to it. And if you can get past the end of level alien, of course.



Now, guess which aspect of the game disappoints most? Yeess – the sound. Most of the time you get a lot of white noise which makes you want to retune your ST, but occasionally a bonus weapon pumps up the volume (as it were) and the sound almost becomes quite good. Graphically, we could have had worse, but then... well, the contestants walk in a campy skipping style, and most of the other effects are the standard sort of stuff you see in every other game. The campaign for decent sound effects continues.



● 'Ere, that's not fair, he's got a big tank thing to drive in. It would be great if you could sneak up behind him and stick a limpet mine on him. Er, but you can't, so, er, that's it.

VERDICT: Well, let's see. To be honest, it's not as good as *Llamatron*, its obvious competitor. The programming is done well enough, but the game doesn't have much edge to it – it's very difficult to become involved or caught up in the action, and there's very rarely an adrenalin surge to keep you going. Better sound would have helped here. If you're playing with two players, things get a little more frantic, but still not really enough.

If you've played the coin-op you know what a frantic noisy experience that is. *Smash TV* almost captures this on the ST, but can't quite bridge that gap between a competent conversion and a top-notch red-hot arcade game that calls you back time and time again. In other words, *Smash TV* misses the star prize but just about manages the cutlery set.

ED RICKETTS

SMASH TV

OCEAN £25.99

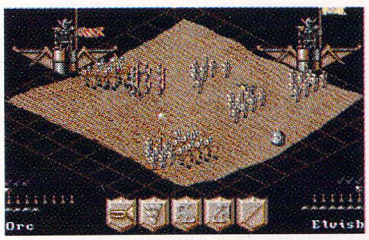
Can run on single sided disks

● *Llamatron* doesn't look as good, but it plays a wicked game and its samples make it the victor.

● The setting is straight out of *The Killing Game Show*, but that game takes the idea of a game show further.

STF RATING 74 %

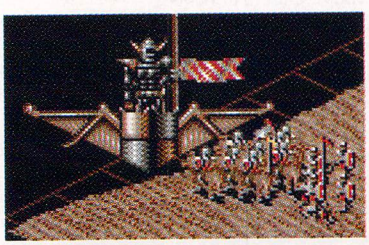
REALMS



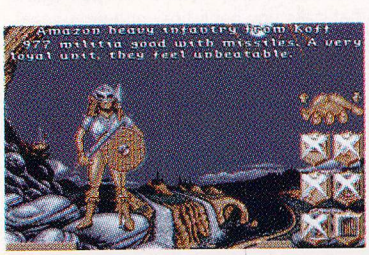
● The frequent battles are a hectic and bloody affair in *Realms*. The two sides in each conflict march proudly into the throng, ignoring the arrows and javelins whizzing past their heads. But when the cutting and slashing begins, your orders are crucial – turn the wrong way or choose the wrong formation and your cavalry is dog-meat.



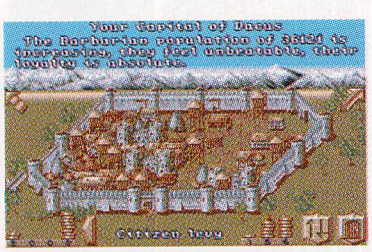
● Time is the most wonderful gift you can ever give someone. No, don't say anything. Just curse quietly to yourself as you wish for a pause mode which you can use to see what's coming on the playfield.



● From the safety of your fortress you can check the lay of the land (she's a tall Amazon woman from the North who answers to the name of Bertha). You can also keep a close watch on the approaching armies of Barbarians, Orcs and other Civil Servant types who are not just popping over for the Bank Holiday weekend.



● Who says armies have to be full of meathead males? The Amazon tribes feature fearless female fighters that'd put Edwina Curry and Ol' Mags herself to shame. But remember, when these lasses demand weapons, they mean weapons, for fighting with, okay?



● Welcome to the scenic capital of Dacus, home of the Barbarians. During your stay you might like to go sightseeing and sample the flavour of our local Barbarian history. There's the Imperial Warp-Spasm Museum and The Chamber of Ordures at Madame Torso's. The acclaimed Science Museum is currently hosting a stunning exhibition of Flat-Sided Stones in the War Technology of the Future department.



● You have to conquer the world – but looking like that isn't going to do it.

That Tolkien bloke has got a lot to answer for. If it wasn't for him, nobody would ever have heard of orcs and the hordes of other creatures which are the lifeblood of so many *Dungeony Dragon* agonies. *Realms* is yet another game which attempts to take the same basic mythology and plonk you in control of the outcome. To you falls the task of conquering the known world; orcs, dwarves, amazons and all. And you'd better be quick about it.

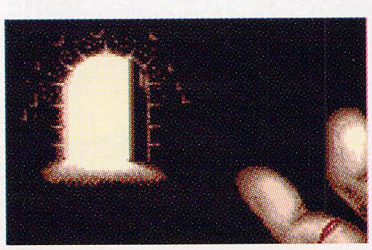
Realms is mouse-controlled throughout and you get used to bringing up the necessary displays very quickly. There are six displays in all, and each one concentrates on a separate facet of the strategy. The Fortress screen is the overall planning display – it contains a *Midwinter* style fractal map that can show the position of enemies and the network of tax routes between all your cities. There's also a treasury room with a set of scales that shows the balance of tax income against your armies' pay level. You set the tax rate for your whole realm here, and you can affect the balance drastically. You may even have a revolution on your hands!

Less warlike, though just as crucial as your expensive armies, are the cities you rule. The City screen enables you to visit each one, even those outside your realm, and see how life is for the masses. Just like armies, each population has a morale level, though you can't boost it with back-handers this time. You can help by reducing taxes – but you've got to watch that balance closely. Instead, you can buy grain for future years, expand the city or build walls – but these all cost money that you could be spending on new recruits. A vicious, but lifelike, circle. The most important, but also the most frustrating display is the Playfield. On the previous displays, time is frozen and you can take as long as you need. But on the Playfield display, everything runs in real-time – and a realm-withering real-time at that.

Right from the beginning, the enemy hordes are a-coming, and the pause mode doesn't enable you to whizz around the excellent *Populous* flavour landscape and spot them. You find yourself wishing you could slow down the passage of time, just occasionally, so you'd stand a better chance of acclimatising yourself to your new empire. Sure, you can use the city screen to pop from place to place, but that way it's easy to lose your sense of direction and forget your geographic position.



It's tempting to console yourself with the battles that regularly occur. The Battle screen, where a mediaeval stand-off takes place, is a Weetabix advert come true, with droves of armed-to-the-teeth diehards lining up in rows to fight. At the top of the screen, flags show which army's had it and which is about to run home whimpering. With this in mind, you must choose from the action buttons very carefully, or you ruin an advantage or make a bad situation worse. You select the formations of each army group as they go in to fight, using wedges for first-strike attacks and Duke of Wellington squares for defence. Cavalary, infantry and specialized long range missile-wielders all need different tactics to work effectively or they get cut to pieces. Once the order to attack has been given, it's quite a task to pinpoint each unit's control flag (especially when they're running), even with a mouse. Real-time is hard work!



● Uh oh! Looks like you've blown it again. As the enemy stormtroopers prepare to storm your capital, you take the easy way out and slit your wrists. Why, oh why, didn't you agree to the word Federal in that stupid treaty – then none of this would've happened.

VERDICT: *Realms* is a beautifully-crafted piece of work, almost as seamless as a Lucasfilm effort, except for a few tiny things which affect the gameplay balance. The lack of time to think and check the playfield constrains you too much. The enemies, on the other hand, know in microseconds where all your weak spots are. If you had as much equivalent time as they did, it might be easier to survive.

Another thing which prevents *Realms* from attaining that Lucas lustre is the basic design of its control functions. They're perfect in every artistic detail except layout and connectivity. You're constantly wasting time on the playfield and the zoom-in icons differ in position from screen to screen. When real-time is as fast as this, even a second can mean an enemy is going to get more of an edge over you which could be crucial.

It's hard not to like *Realms* – it's got a great intro, powerful graphics and a rare, expert use of the ST sound-chip to create unobtrustive, atmospheric music without samples. It even gets extra brownie points for volume-fading! But as a game it's too much like life – fast, furious and often unfair. But hey! Maybe that in itself is something of a challenge – and if you buy *Realms*, you'd better be up to one.

NEIL JACKSON

REALMS

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STF RATING 87 %



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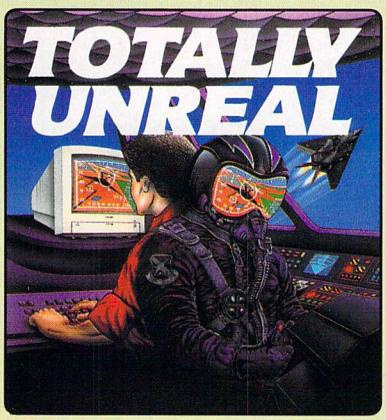
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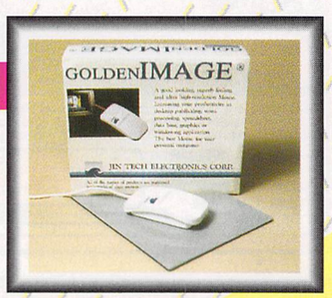
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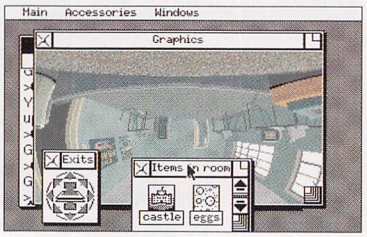
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Yes, you're a goldfish. You start the game in a bowl on the sideboard, with only some gravel and a tacky castle for company. You can go into the castle, though, which is bigger than it appears.

Although you're a mere aquatic creature, you still enter a world of adventure, doing everything humans can do in other adventures. You collect things, holding them in your mouth, and can operate fundamental devices.

The call-up graphics in *Fish!* are great, with some nice distorted fish-eye views of the world. *Fish!* was a new idea in adventures, and is done well.



● Being a fish isn't about swimming one way then turning round and swimming the other. Sometimes you have to swim the other way first, then do a double turn and keep swimming that way.

CORRUPTION

From fish to businessman. You now enter the world of finance, extortion and wheeler-dealing. You must travel around the world in your car and on foot, stealing things from safes and accumulating damning information on your colleagues. *Corruption* has a tense, chain-smoking sort of atmosphere, with plenty of sleazy private investigation-type antics. You've got to ask the right questions, sift through mounds of irrelevant paperwork and tease out the vital evidence.



● If you're really intent on creating a health club to put Uttoxeter firmly on the map of Europe, *Corruption* seems the best place to start – in this office, packed with secret files and confidential ash-trays.

There's a lot to do and not much time, so order a pot of coffee and a dozen memo pads, and get the hell out of the office before they arrive.

THE GUILD OF THIEVES

As a member of the Guild Of Thieves, you've got to set off to a castle and nick stuff. Sounds like every adventure you've ever played? Well, maybe, but nicking stuff from this castle is tough. There are lots of guards wandering around, for a start.

It's a survive-on-your-wits type of game, done with plenty of pretty fantasy graphics and lavish descriptions of your environment. As with the other two games, you can't afford to make too many mistakes, so keep your wits about you as you battle, struggle with and run from the police (or whatever).

VERDICT: Smooth, pretty fast and with an excellent windows game-system, these three adventures are going to delight fans of the genre. There's lots of great graphics and high-class programming, too. But get yourself a hard drive because there's an awful lot of disk swapping.

JAMES LEACH



● It's pleasant sitting here just lazily drifting your hand in the water and listening to your chums – the Guild of Thieves – talk about what they've nicked, and how they got away with it.

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Runs in 1MByte on double-sided disks

- Three big and absorbing adventures in one box.
- Much disk swapping, but can be installed on hard drive.

STF RATING 81 %

SUSPICIOUS CARGO



● Just because it's the future and you're called Jonah, it doesn't mean you can go around smuggling Suspicious Cargoes. But when they're about to take away your ship, you have to make cash somehow.

Jonah Hayes is the sort of roguish Jack-the-lad lawbreaker who only seems to crop up in sci-fi stories and westerns. Through every fault of his own, Jonah's ship has been remortgaged countless times and now the moneylenders want to take it away to pay for his debts. He has one final chance to make amends – by smuggling something naughty (the eponymous Cargo) from Titan to Olympus Space Station in the earth's orbit. Of course, the odds are stacked against him. The authorities are suspicious of him anyway, because of his past (somewhat broken) record, so even finding and getting onto his ship is a hassle.

Suspicious Cargo is a good old-fashioned text adventure with the odd graphic or two. There's an icon system you can use if you don't fancy the thought of all that typing. Select an action and everything in the location appropriate to this action is listed, so you know immediately what you can and can't do. To spice things up even more, there are a few interactive logic and arcade puzzles you can play scattered about the locations – things like the old *Lunar Lander* game. They don't have to be completed to finish the game – they just provide light relief.

A lot of care has been put in to present *Cargo* professionally. It's the first game to mix medium and low resolutions on one screen, together with four different palettes using split palette techniques. The only disappointing thing is the predictable "futuristic" text.

VERDICT: *Suspicious Cargo* is a competent adventure spoilt by the one thing that can put you off playing adventures for life – the instant death. In the early stages of the game, it's all too easy to be sailing along one instant and find the game has ended at the next, through no apparent fault of your own. If you can live with this – not easy, but possible – *SC* has a lot to offer. The icon system is easy to get to grips with, but like *Wonderland*, it's usually easier to type in what you want.

The parser is as sophisticated as a modern day's adventure should be – understanding pronouns and other complex ideas. Overall, you could do worse than introduce yourself to the world of adventuring with *Suspicious Cargo*.

ED RICKETTS

SUSPICIOUS CARGO

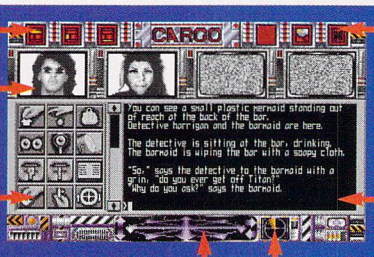
GREMLIN £25.99

- The icon system is a little like *Wonderland* but doesn't try to be as ambitious. Consequently, it's easier to use.
- The closest recent adventure has to be *Demoniak*. *Cargo* is less imaginative but more approachable.

STF RATING 79 %

IT'S FREIGHTFULLY EASY

Another new adventuring system to get to grips with. This one is simplicity itself (it says here). You can either type in commands directly (always the quickest and easiest way) or use the icons to select an action and an object to perform it on. Similarly, to move, you can click an exit on the compass, use the map on board ship or type in a direction.



Icons to change the screen layout.

Screens that show the mugs of any other characters in this location.

Action icons – take, use, search and so on.

Icons to select the map (on your ship), to see the graphic for this location (if there is one) and to enter an interactive puzzle.

Main text display.

Compass, with exits shown flashing.

Pointless swirly thing that does nothing.

GAUNTLET 3

In the list of the most hated villains of the 20th Century, the IT monster must surely be near the top. The IT was the monster which, when it touched you in a game of *Gauntlet,* made all the other monsters home in on you relentlessly.

Sadly, the heinous IT is missing from *Gauntlet 3,* the (logically) third game of the series. The object of the game is the same: run around a large scrolling area shooting nasties (these emerge from generators which can themselves be shot), collect treasure, topping up your energy now and again with food, and finding magic items to give you extra powers. Buuuut... the perspective has changed. In both previous games, everything was viewed from overhead, which meant that although a lot could be fitted on screen at once – giving a manic feel to the game – the graphics weren't given a chance to shine. Now it's all in isometric 3D, viewed side on and slightly from above.

The trouble is, these graphics aren't nearly as good as their equivalents from the previous games. The landscape is patchy and poorly drawn and you don't recognise most of the monsters you so gladly slaughtered before. Worst of all, the sprites move so slowly, it's damn near impossible to get any "feel" for the game. By the time you've swivelled around to shoot at the monsters behind you, you've lost the will to live.

VERDICT: The essence of a game of *Gauntlet* – that is, the busy screen, hundreds of monsters literally queuing up to bash you, swearing at the other person playing because he just collected the magic item you wanted is missing from *Gauntlet 3,* and so the game just falls over and does nothing. It's not fun to play it but a chore.

The graphics and sound don't help – if the transition to 3D was going to be made convincingly, they should have been razor-sharp. It's all very tedious. Can't wait for the holographic version of *Gauntlet 4* though.

ED RICKETTS



● **It's a logical step, really. From an overhead scrolling view to a 3D scrolling view – *Gauntlet 3* brings you all the old monsters, but this time in glowingly glorious (sort of) Techno-ScopeVision Colour.**



● **Sometimes you find interesting-looking objects, like this, er, bucket. Pick it up and you're given this cryptic clue. What can it mean? Well, you could try taking it to the well... no, that's just what they're expecting you to do.**

GAUNTLET 3

US GOLD – £25.99

● Obvious comparisons to previous *Gaunts* abound, but both ST versions are better than this.

STF RATING 48 %

DRAGON'S LAIR: ESCAPE FROM SINGE'S CASTLE



***Space Ace* you could just** about tolerate. *Dragon's Lair 2* was pushing it a bit. But now there's another Readysoft laser disk conversion for your ST, you might be wondering when it's all going to end. After all, if you've played one... This game also concerns the dork called Dirk. This time he's rescuing someone else from Singe's castle – does he never bloody learn?

● **Laser disk games! What a great idea! All that groovy animation, those fabulous samples, those, er, nice graphics, and those... funky sounds. Coming soon: the *Escape from Singe's Castle* Gameplay Disk.**

The game is a series of short animated scenes, each involving Dirk in a life-threatening situation. Your job is to watch the animation carefully and, at the right moments, jab the joystick in the appropriate direction. If you're right, Dirk survives. If not, it's Goodbye, Mr Life, and another try at the scene. You never have full control over Dirk – he only sometimes responds to your instructions, so you might push right and find he doesn't move for several seconds.

As you might expect from this sort of game, the graphics and sound are exceptional. The backgrounds to each scene have been carefully drawn to traditional animated cartoon standard, as have the characters in the foreground. Animation is fairly smooth, particularly when you consider the size of the characters. Samples are used at dramatic moments and considerably add to the atmosphere.

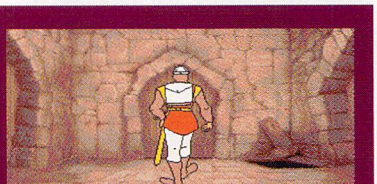
VERDICT: Things haven't changed in the world of laser disk games. They're still chock full of gorgeous graphics and stonking sounds, but the gameplay seems to have slipped out in transit. There just isn't any. Whacking a joystick occasionally hoping something good might happen isn't skilful, it's just plain annoying. Very *very* annoying – the game's so frustrating you don't want to play it at all. Particularly since there are long, slow bouts of disk accessing after every scene and when you die – and the game's not even hard drive installable which is the only thing that might have made it vaguely playable.

Boring, dull, frustrating, pointless and ridiculously expensive. Apart from that, it's fine.

ED RICKETTS

OOH, WHAT AN, ER, CHALLENGING GAME

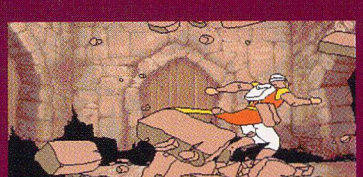
If you can't make the game complicated, make it very, very difficult – that's obviously the philosophy adopted by Readysoft. Even these first few scenes drive you crazy until you find the right moves.



● **Dirk approaches the castle with not a little trepidation. Quite rightly too, because as soon as he gets near the doors...**



● **...the earth begins to move and he's simultaneously struck by a blinding headache. Which way now?**



● **We can exclusively reveal that you have to go left – that's right – at this point. Cue massive amounts of disk accessing.**



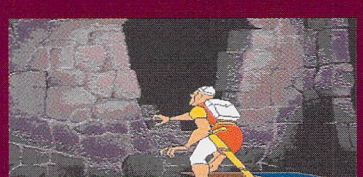
● **Dirk now comes across a strange fiery-type fire on one of those chequered floors from a raytracing picture. And guess what?**



● **Yes, the floor starts to give way. What a surprise. Jump backwards, forwards, then, er, forwards again...**



● **...to find yourself teetering on the edge of the precipice. Which way? Try forwards.**



● **Only joking. Go left and nip through the door before it closes. And so on, and so on, ad nauseum.**

DRAGON'S LAIR: ESCAPE FROM SINGE'S CASTLE

READYSOFT £34.99

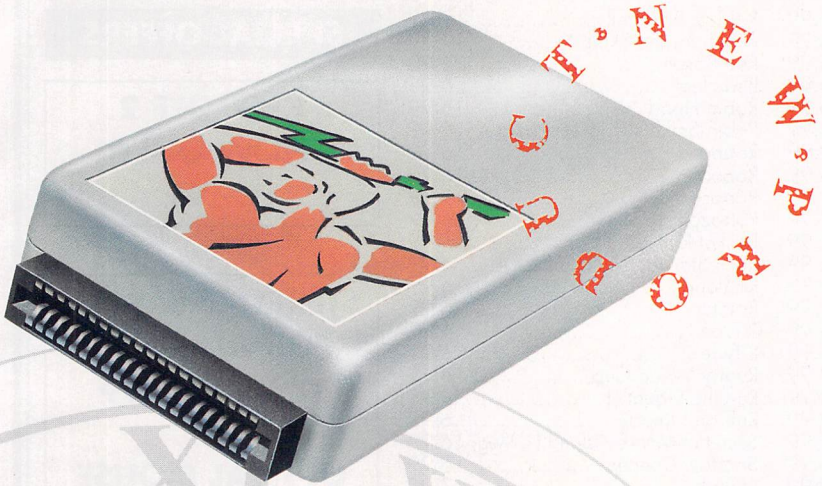
● Readysoft's other games, *Space Ace* and *Dragon's Lair 2,* are the only ones that can boast similar graphics – and a similar two second attention span.

● Great samples, just like *Llamatron,* only less so.

STF RATING 31 %

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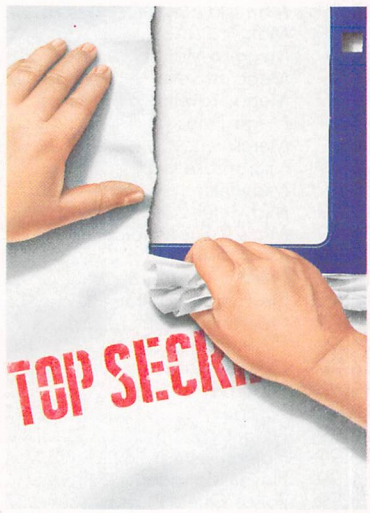
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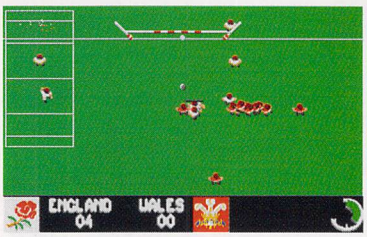
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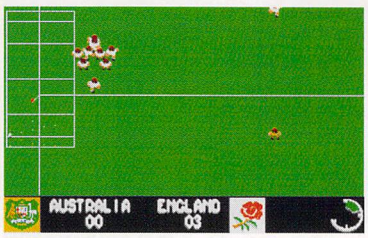
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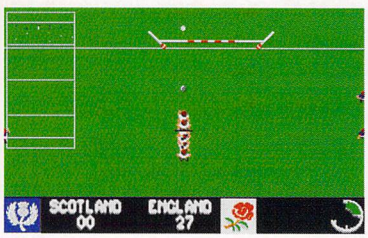
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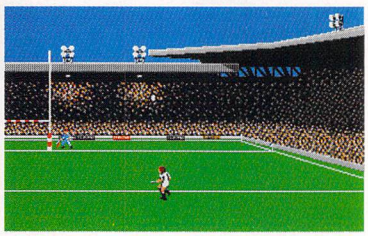
● There's a major bug in this game – the Welsh are quite good and we know this is wholly inaccurate!



● I really don't give a XXXX how good the Aussies are – at last, this is my chance for revenge!



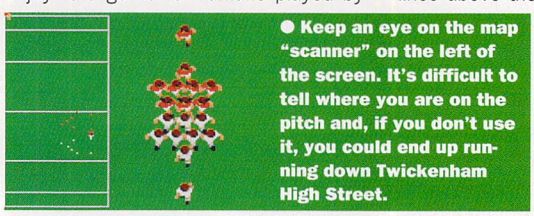
● ...and it's Carling, to Guscott, to Underwood who goes for the drop-goal. Yeeeees! It's therrrrre!!!



● Conversions are easy. All you've got to do is line up that cursor, press <Fire>and it's just where you want it.

RUGBY – THE WORLD CUP

One day in 1823, while playing soccer, William Webb Ellis decided it would be a great idea to pick up the ball and run with it. Instead of being sent off, Ellis was hailed as the "Father of the handling game" by inventing Rugby Football. (Maradonna didn't get anything like this recognition in 1986!) *Rugby – the World Cup* now means you can enjoy "the game for ruffians played by gentlemen" without leaving the comfort of your keyboard.



● Keep an eye on the map "scanner" on the left of the screen. It's difficult to tell where you are on the pitch and, if you don't use it, you could end up running down Twickenham High Street.

Rugby is an overhead simulation that enables you to control a team from one of the world's top rugby playing nations. As the name suggests, it's based on the 1991 tournament, but you also have the choice of playing single games. Once you have selected the match duration – 20, 40 or 60 minutes – and your opponents for a single match, the teams sprint onto the pitch to begin a bout of gratuitous violence.

Thankfully there's no management-sim rubbish, but you are able to do everything you'd expect to do while on the pitch. Some vague knowledge of rugby is helpful, but the controls are simple to use. The joystick moves your players, although only those with black lines above their heads can actually be controlled. To pass or kick, simply press <Fire> and the ball travels in the direction you're running. The longer you hold down the <Fire> button, the further it travels. Tackling involves running into your opponent when he has the ball. If you mistime your dive, though, you're left sprawling in the dirt.

The game includes scrums and line-outs which are important to win to gain possession and control play. You win these set-pieces by pushing the joystick left and right as quickly as possible until the ball is released to your scrum-half. Don't hang around with it here, though, or the opposing forwards are on you like a ton of bricks.

Try-scoring couldn't be easier once you've passed the opposition's try-line. Just press <Fire> and you collect your four points and some unconvincing crowd applause. Converting the try is nicely executed. Press the <Fire> button when the cursor is between the posts and the kicker obligingly belts the ball through the uprights. Drop-goals and push-over tries are also possible and add to the realism.

VERDICT: Unless you're a fan of exhausting joystick waggling you may find that's your biggest gripe with *Rugby* – a lot of it goes on and, if you do well in the tournament option, you'll never play the piano again. It is, however, a surprisingly accurate sim that captures the excitement of the sport and has a high "grab-factor." The game is fast-moving and the controls simple to use.

The "scanner" on the left of the screen is useful since it shows your position on the pitch and is vital to your success. Another great aspect is the skill of your opponents. Each of the 16 teams has a different level of ability, so beating the USA is easy but the All Blacks are a different proposition altogether, however, playing the two-player option is more fun. If you're into rugger after the October coverage, you'll have a great time with this game. So, ruck off down to the games shop and try it!

RICHARD BRADSHAW

RUGBY – THE WORLD CUP

DOMARK £24.99

- Graphics are less detailed than most football games such as *Kick Off 2*.
- Runs at an excellent speed – faster than *International 3D Soccer*.
- Relies heavily on your ability to win set pieces, which can be frustrating. If you have arthritic hands, forget it.
- Simple but realistic. It recreates the flow of the sport well – better than *I Play 3D Soccer*.

STF RATING 76 %

THUNDER BURNER

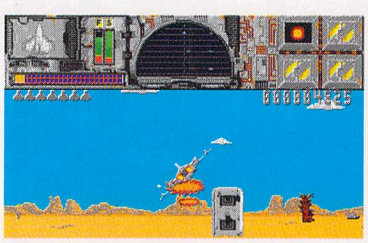
Aren't Transformers that turn into planes great? (What do you mean, what are Transformers?) Wouldn't it be great to play one in a game? In theory, yes.

In *Thunder Burner*, you are indeed one of these walking robot things that can turn into a plane at any point. Whether stomping or flying around, you should seek out the life-giving balls that hang in mid-air on your way to the end of the level. Here you do, of course, meet the end-of-level guardian.

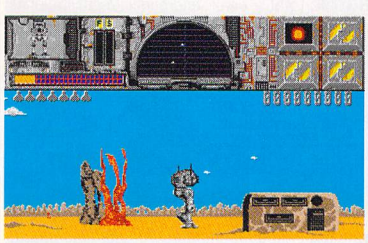
In your way are ground defences – toaster-shaped things – that fire at you, airborne planes that swoop over your head and, er, shoot at you, and looming rocks that loom a lot and make you crash. The 3D effect of the landscape and the objects on it moving towards you is pretty cheesy, but not so bad as to be unconvincing. The game's French so the sound is good: hefty walking samples, thudding thuds for the explosions and such like.

VERDICT: *Thunder Burner* could have been an absolutely exceptional game, but its effects are what let it down. The samples are great though the graphics are fairly primitive – for example, there are only a few frames of animation for each effect – and there's not really enough there to keep you interested for very long. Nice idea, shame it's a let down all round.

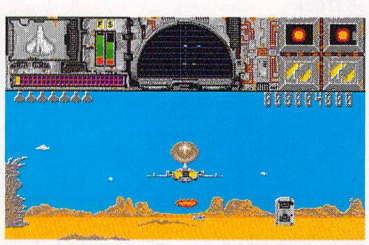
ED RICKETTS



● "I've been through the desert on a plane with no name," (*Thunder Burner!* It's *Thunder Burner,* dolt!). "In the desert, there's no one for to give you no pain" (except those big metal things that shoot at you).



● As old Granny Morgan used to say, "Run away from the nasties. Shoot the nasties. Don't collide with the nasties, and you won't go far wrong."



● These balls are what you're aiming for. They give you energy, so head in their direction at every possible point (but not if it means crashing into something, obviously).

THUNDER BURNER

LORICIEL/INFOGRAMES £19.99

- The 3D desert is a little bit like *Encounter* or *Backlash*. Those games have smoother 3D and more manic gameplay.
- Tha name's like *Afterburner* and so is the game – dire.

STF RATING 53 %

CHART ATTACK

The name itself makes things quite clear. Gremlin are going for the throats of those who've "waited-for-the-compilation-'cos-you-get-more-for-your-money" brigade. Four of their biggies are included here, ranging from the excellent to the not-at-all-bad.

LOTUS ESPRIT TURBO CHALLENGE: You've got a nice red Lotus capable of 160mph here. What are you going to do with it? Well, there aren't any Essex Girls around to impress, so you'd better race it against 19 other Lotuses which don't seem to go quite as fast.

Turbo Challenge caused a fair fuss when it appeared because it was smooth, fast and very playable. It still is, of course. Time has removed some of its shine, but it remains a "must-own." You race on up to 15 increasingly tough circuits one after the other, trying to qualify on each.

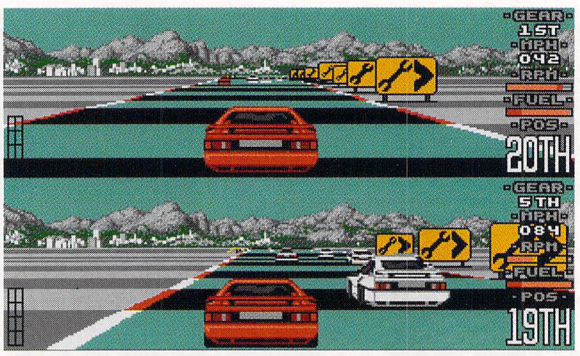
You can choose your control method, use the correct racing lines and generally do everything properly (such is *Turbo Challenge's* quality) and you can even race a chum with the split-screen mode. It works very well, and many hours of fun can well be had from it.

JAMES POND: Oh dear. Silliness seems to be the best way of getting another scrolly shoot-'em-up platformer into the limelight. Luckily, in the case of *James Pond,* there's a very playable game behind the dreadful fishy jokes. You swim around twelve levels collecting objects with which to save the day.

It's tricky, owing to the underwater control method, and looks very pretty indeed. There is a huge variety of baddies and, er, other things to meet, with plenty of secret caverns dotted around and mysterious objects begging to be tried out.

The James Bond mickey-take is carried on throughout the game, and adds to what is already a great piece of software. (There. Not a fishy pun in sight, thank cod.)

VENUS THE FLYTRAP: Another above-average shoot-'em-up. This time you're an insect-eating plant. Or rather a metallic fly named after one. You're after swarms of mutant flies who, instead of looking for dung or juicy butter pats to nosh, have decided to take over the world. Getting rid of them is a tall order but thanks to cybernetics (phew!) you're the ultimate killer.



● **In *Turbo Challenge,* just pretend it's the M25. The speeds are the same but the other driver's doesn't have the same aggressive instinct you see on London's orbital high-speed car park.**

There are ten worlds, each with five levels to explore. The game is, therefore, rather large and time-consuming. Like *James Pond,* there are dozens of collectables and loads of extra weapons available to the brave and the lucky. As you trundle through the levels, you face plenty of nicely drawn opposition from the understandably annoyed flies.

Venus The FlyTrap is a tough game to get far in, but it's a lot of fun for a rainy afternoon and it's got that magic just-one-more-go element.

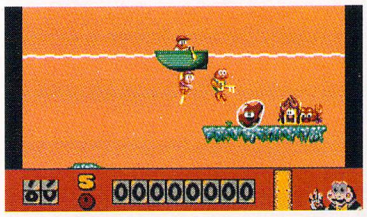
GHOULS 'N' GHOSTS: Suitably clad in armour, you wander from left to right, throwing knives at coach-loads of undead folk issuing forth from the bowels of the earth.

Ghouls 'n' Ghosts is a traditional – if not old-fashioned – game which sets you the task of going as far to the right as you can before losing all your armour and running around in a loin-cloth, before finally turning into a skeleton and collapsing.

There are plenty of platforms to climb onto, chests containing more efficient weapons and other enticements, but, unless you're really into simple scrollers, *Ghouls 'n' Ghosts* will wear you down until you yearn for the dreamless eternity of death.

VERDICT: *Chart Attack* is an excellent compilation. *Ghouls 'n' Ghosts* is the weakest of them, and that's actually worth a few plays. If you haven't got *James Pond* and *Lotus Challenge,* you should get it for those two. The other games are bonuses, really.

JAMES LEACH



● **Your watery life flashes before your eyes as a powerful and deadly boat looms ahead. Oh well, it's been fun being a weak *James Bond*-related pun.**



● **I've not been scared out of me skin in *Ghouls'n' Ghosts.* Not at all. I've just been hitting the Rosemary Conley diet a bit zealously, that's all.**

CHART ATTACK

GREMLIN £29.99

Runs on double-sided disks only

● Four playable games, two and a half of which are really jolly good.

● It's arcade action all the way, so don't expect your brain to be taxed at the highest rate.

STF RATING 83 %

ACTION PACK

Ten games on ten disks works out at £2.70 per game. Goodness me. It's almost PD prices. So, what would you expect for that?

MAYA: Arcade adventure of stunning mediocrity. It's big though, and you travel round a map (provided), looking for dead archaeologists and Mayan artefacts which must be worth a few bob to someone. *Maya* is showing its age, but fans can happily get stuck into it for a while.

FAST LANE: Try and win the C1 motor car racing championship, racing on nine circuits. *Lotus Challenge* this most certainly isn't. But it's pretty playable and there's quite a bit to do – mainly fiddling with parts of the car.

TARGHAN: Fantasy platform scroller which sees you beating up the minions of the pixel king. It's not particularly inspiring, but you can just about stick with it.

ON SAFARI: Move the cursors to photograph wild animals and murder poachers. But don't mix up your camera with your gun or, shock of shocks, you might injure some wildlife and annoy Jonathan Porritt!

ELIMINATOR: Belt along a series of alien tunnels while avoiding or destroying the very aliens who created them. Collect more powerful weapons and try to survive until you get bored.

HOSTAGES: Shoot terrorists from windows, blow them up in 3Dish embassies and win a medal. There are three stages in which to do this. The SAS has an awful lot to answer for, that's for sure.

COSMIC PIRATE: Admit you've played this game in public and win another medal. You must rid the galaxy of everything, but try and bias your destruction towards baddies. It's a blaster with several stages.

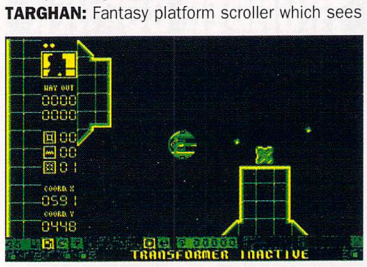
COLORADO: Search for Pocohontas' gold mine by wandering along several Indian-infested levels. Arrange pow-wow peace talks and kill everyone who turns up unarmed. Win a medal for xenophobia.

ROTOR: Fight a weak *Asteroids* like gravitational pull and steer your craft in order to collect crystals of power. Then do it again, in a slightly different location. The future of everything depends on how well your gravitational pull-beating abilities bear up.

SHERMAN M4: Blow up unrealistic German tanks in the Ardennes or Normandy with your own *Battlezone*-like vehicles. 3D whizzaround graphics and stupid enemies make M4 easy to play, but hard to enjoy.

VERDICT: These ten games are extremely varied and could provide hours of fun for the not-very-discerning user. At the price, you actually get a lot, but none of them are actually much good.

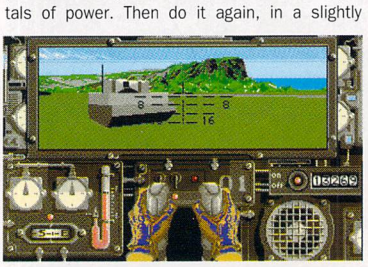
JAMES LEACH



● **A useful fuel tank, capable of solving the world's energy crisis is always a good target to fire at in *Rotor.***



● **It's typical of *Hostage.* The one time I get the spotlight to myself, some freedom fighter in the audience assassinates me. I'll have to change the act.**



● **In *Sherman,* you hear cries of "There he is, Smithers! To the right!" "I can't see him, Captain Bartholomew! Perhaps he's behind that tree."**

ACTION PACK

ACTION SIXTEEN £26.99

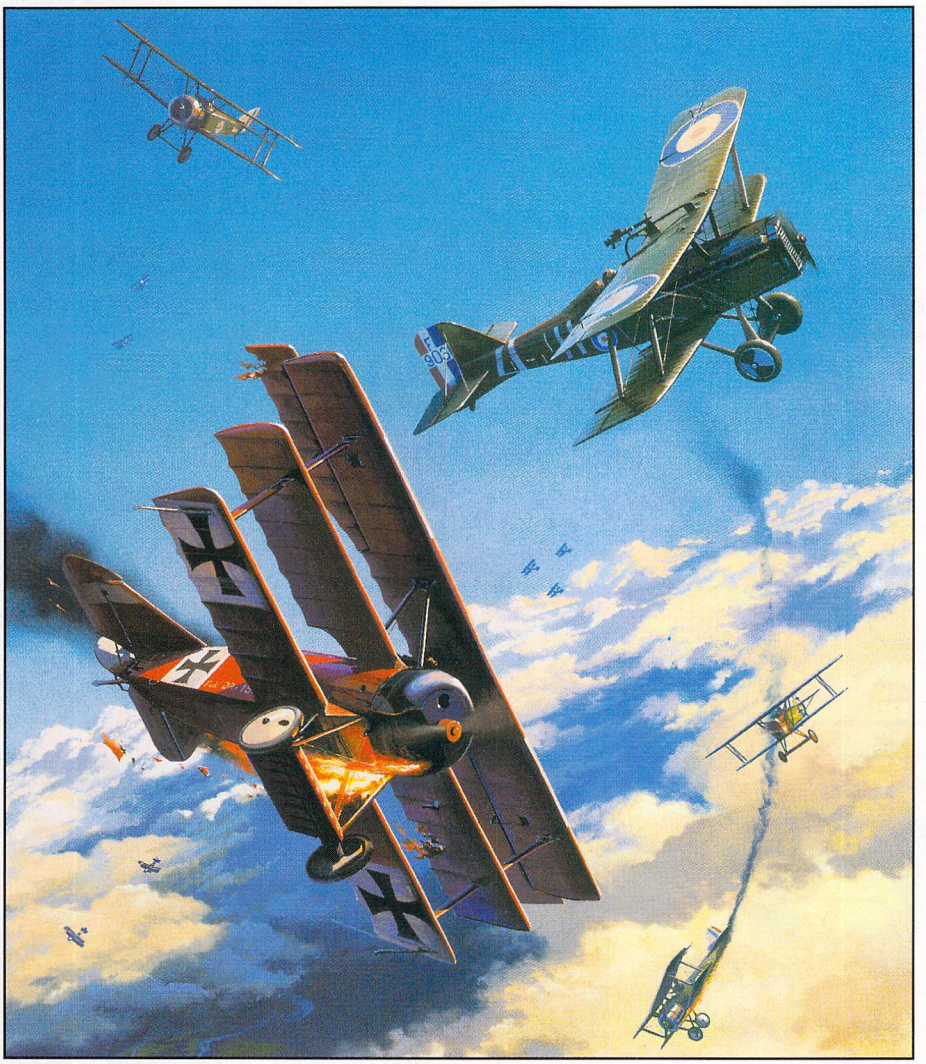
Can run on single sided disks

● Keep the kids out of the kitchen with this compilation.

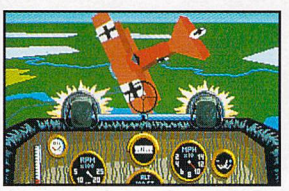
● There's a wide variety of software here, and, for the money, it beats picking PD games at random.

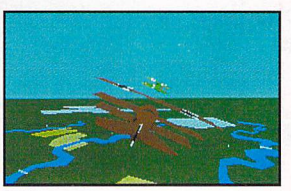
STF RATING 56 %

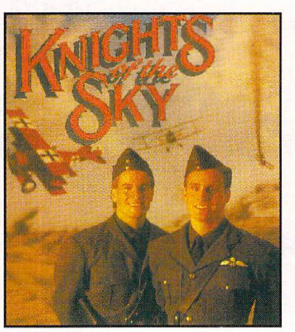
"I say chaps, the Red Baron's just bought it!"



"Thanks to Knights of the Sky"







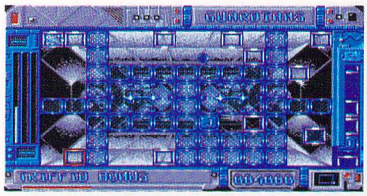
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GUARDIANS

***Guardians.* How to explain it?** Ignore the ridiculous plot and take notes, we'll be asking questions later.

What you've got is a three-dimensional room, over the front of which is a partial covering. A ball is set in motion in the room and it bounces around, rebounding off the walls and the partial covering. Meanwhile, on the right, coloured squares drop down a chute, stay for a while at the bottom, then toddle off again. If you pick these squares up with the mouse you can drop them into the vacant places on the covering, where they can still be moved around. However, squares of the same colour in groups of four, six or nine fuse together and become part of the solid barrier. Got it so far?



● There's a certain fascination about a ball bouncing about an almost enclosed room, isn't there? You might not have thought so but a few games of *Guardians* may make you see the light.

There are three goals to each level. First, to stop the ball leaving the room by covering as much of the opening as possible. Your time limit is decreased considerably every time the ball escapes. Second, to collect the bonuses that appear randomly on parts of the screen. If not collected, these have an adverse effect on you: decreasing your score, changing the cursor controls and so on. Third, to build up enough of a score before your time limit runs out to get to the next level. As the levels progress, more balls appear (up to three at a time), the falling colours become more unfriendly and the necessary score increases.

As is usual with Loriciel games, sound is the most outstanding attribute – sampled music you can quite easily listen to for half an hour being played throughout. The graphics haven't been neglected either; there's lot of detail to distract you from the task in hand.

VERDICT: *Guardians* is weirdly fun. French software houses don't half come up with some strange concepts, but they're welcome departures from the usual round of monster-bashing and great fun for getting your mind around for half an hour or so. The game does pall after a while, but then you wouldn't expect to be playing it for hours on end. Get someone else to buy it for you and waste some time the fun way.

ED RICKETTS

GUARDIANS

LORICIEL/INFOGRAMES

£25.99

● Same sort of "simple but fun" concept as Loriciel's other games, *Disc* and *Quadrel*.

STF RATING 71 %

BOOLY

***Booly* is a French game,** and it doesn't half show. Under the guise of high-tech spaceship weapons console-ness, you must click the mouse pointer on various coloured icons in the display zone. When you do, they change colour. The idea is to get them all one colour.

Sounds not unlike that classic change-the-colours game, *Skweek*. But you rapidly discover that in *Booly*, clicking one icon changes the colours of others around it. So realisation slowly dawns – it's a puzzle game. No more, no less. Once you succeed in changing the colours and clear each screen, you move on to harder and more packed ones.

A time limit keeps the mouse whizzing from side to side as you click furiously and curse fluently. There are dozens of levels, so in the unlikely event that you get hooked, you can play and play and play.

VERDICT: The size of *Booly* is really the only thing in its favour. It's not very easy to solve each screen, either. So, *Booly* could stay with you forever, which is a pity because it's crap.

JAMES LEACH

BOOLY

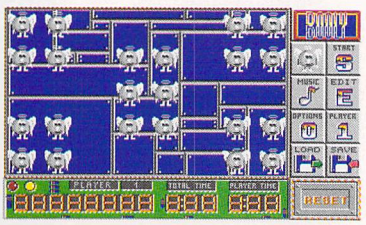
LORICIEL £19.99

Can run on single sided disks

● Like *Skweek*, this puzzle game should be used to interest hyperactive kids on rainy days.

● The disk can be used as a small but effective draught-excluder or a makeshift frisbee.

STF RATING 34 %



● Don't be fooled by the elephants with haloes. *Booly* isn't a surreal game of the sort you've just got to own. In fact, the elephants ought to be ashamed of themselves for being in it.

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- Graphics Resolution: 360×360dpi
- Epson and IBM Emulation
- Optional Auto Sheet Feeder
- FREE Silica Printer Starter Kit

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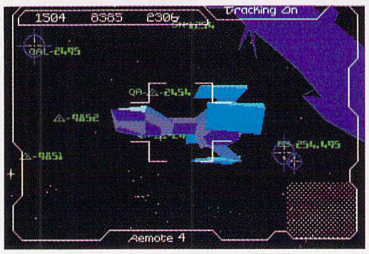
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This makes for a huge game with totally excellent graphics – even by today's standards. When the full-price game was reviewed in *STF* 14 it got 91%, primarily for these incredible visuals. They're fast, too, making the gameplay something that has to be experienced. As well as destroying things, you must avoid destruction by various insect-related craft and static defences positioned in obscure and unlikely places. Luckily, you can collect some serious firepower to help you.

VERDICT: *Magic Fly* is a very complex game. Keyboard shortcuts help but it's still a seriously thought-provoking challenge. If you're prepared to invest the time, *Magic Fly* delivers the goods.

JAMES LEACH

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● Superseded now, but at the time *Magic Fly* had the best and fastest graphics around.

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STF RATING 84 %

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The whole game is icon driven on four scales of map, and you can watch your aircraft (well, small coloured dots really) battling it out over the scorched deserts and knackered oil-wells of the region. *Fighter Command* is atmospheric, largely thanks to the digitised pictures with which it is sprinkled.

VERDICT: The action takes place quickly in *Fighter Command* and, once the rules are grasped, (a terrible manual doesn't help) it's an enjoyable foray into modern wargaming. If you're a fan of loud and pointy military airpower you'll be impressed by the accuracy of much of the hardware used, too.

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● Plenty of scenarios in one game as in *Silent Service 2*. However, unlike *SS2*, ultimately each scenario is similar to the last.

● Good quality war game way above the standard of *Rorke's Drift*.

STF RATING 71 %

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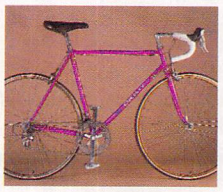
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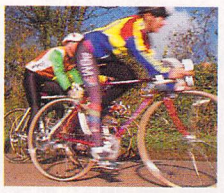
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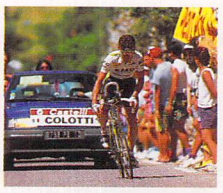
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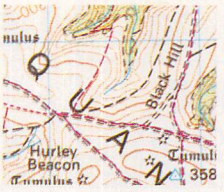
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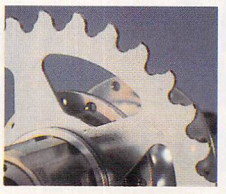
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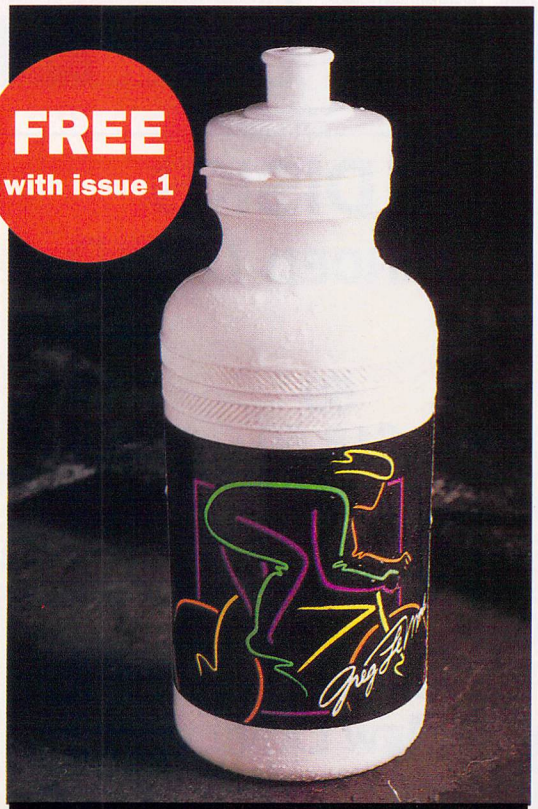
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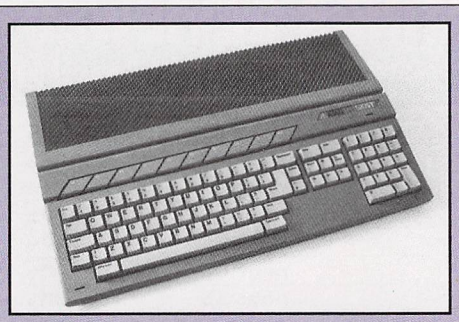
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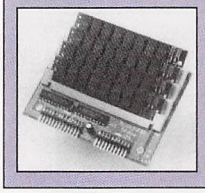


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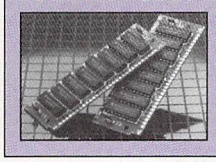
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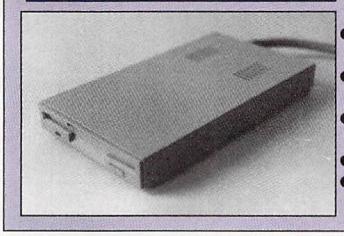
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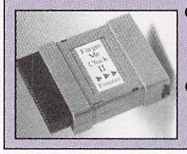


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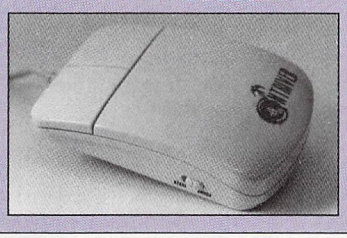


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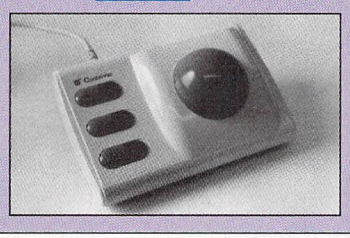
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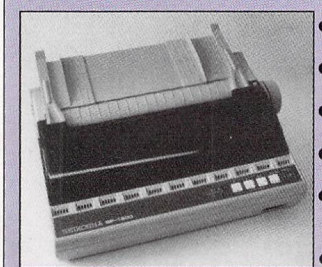


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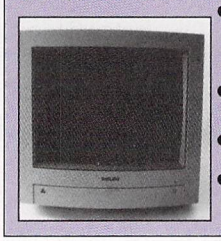


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TURRICAN

Germany isn't entirely peopled by deadly serious ST owners with mono monitors; there are some people who play games, and even write them. *Turrican* is German, and it's now out on budget.

Usual stuff: run about the scrolling landscape blasting everything you clap eyes on, collect the power-ups to power up, and stay out of trouble. The graphics initially look little more than average, but, after playing the game for a bit, you notice how smooth the scrolling is, how well the main character moves, and the excellent detailed shading on the background. The sky gets darker as you progress into the underground caves, too.

VERDICT: *Turrican* is still an excellent shoot-'em-up, though it does seem to suffer somewhat from a lack of character. Everything is well-programmed, but the game has no soul. If, however, you couldn't give a flying semprini if a game has soul or not, you'll be at home here. There's carnage aplenty, it's not too hard, and there's a huge world to explore. A classic blaster.

ED RICKETTS



● **One of these bats is a little different from the others. Can you tell which one it is? That's right, it's the big man-shaped one with the gun on the left. *Turrican* – German for *"Turrican."***

TURRICAN

KIXX £7.99

● About as original as *Alexei Sayle's Stuff*, but great fun nevertheless. Compare with *Turrican 2* – this one stands up well.

STF RATING 77 %

TITANIC BLINKY

We've had every "Dizzy" game under the sun (*Leprosy Colony Dizzy* is next up, apparently), and now Zeppelin are evidently hoping that people are going to warm to their new character, Blinky.

Blinky is a ghost stuck on the Titanic, who has to collect, er, things to stop old what's-his-name before he can destroy the world. Actually, ignore all that. All you need to know is that you should be shooting the baddies, jumping around the deck and collecting goodies. Objects have to be collected to solve puzzles to let you progress to let you shoot baddies to...

Yes, it's bland, unoriginal and very silly, but it's put together well. The graphics are nicely drawn: big bright colours, good thick lines around everything, and there's some plings and plomps thrown in on the sound side.

VERDICT: Find a small child, watch him play this and convince yourself it's quite a good game – for one with a concept originating around 1983. The box is handy for propping up your monitor.

ED RICKETTS

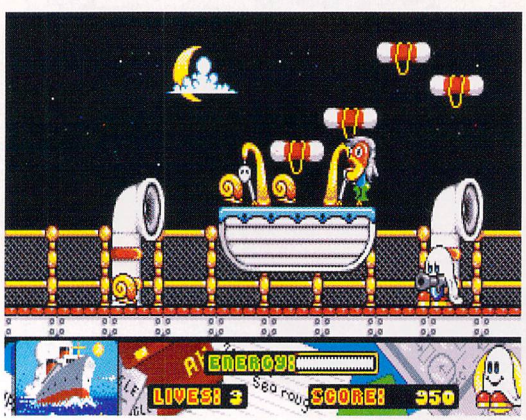
TITANIC BLINKY

ZEPPELIN £7.99

● Great for "the kiddies;" not so great otherwise.

● Competently done, though Codemasters will probably sue.

STF RATING 69 %



● **Blinky gives the game away slightly whenever he shoots. He is, in fact, a very sad man with a sheet on his head. Sorry to shatter your illusions, but there you are.**

FORMAT RATINGS REVIEWED

How did *FORMAT* rate the games reviewed over the last three months?

POPULOUS 2	STF 30	95%
VROOM	STF 29	92%
UTOPIA	STF 29	90%
Silent Service	STF 30	88%
Populous	STF 30	88%
Realms	page 66	87%
Robocod	page 56	86%
MiG-29 M SuperFulcrum	STF 29	85%
Magic Fly	page 79	84%
Chart Attack	page 74	83%
Magnetic Scrolls Collection	page 69	81%
Bug Hunt	STF 30	80%
Suspicious Cargo	page 69	79%
First Samurai	STF 30	79%
Suspicious Cargo	STF 30	79%
Baby Jo	STF 30	79%
Train Set 2	STF 30	78%
Turrican	page 82	77%
Lotus Turbo Challenge 2	STF 30	77%
Cruise for a Corpse	STF 29	76%
Rugby – The World Cup	page 73	76%
Rolling Ronny	STF 30	76%
Smash TV	page 65	74%
The Simpsons	page 60	74%
Final Fight	STF 29	74%
Cisco Heat	STF 30	72%
Blues Brothers	STF 29	72%
Deathbringer	STF 30	72%
Guardians	page 76	71%
Fighter Command	page 79	71%
Evilution	STF 29	70%
Rodland	STF 29	70%
Wolfpack	STF 30	70%
Titanic Blinky	page 82	69%
Elf	STF 29	69%
Shadow Sorcerer	STF 29	69%
Fort Apache	STF 30	68%
The Adventures of Robin Hood	STF 29	68%
Wild Wheels	STF 30	67%
Crime Time	STF 30	67%
Five Intelligent Strategy Games	STF 30	67%
Face Off	STF 29	65%
Ynis Wintrin	STF 30	65%
Beast Busters	STF 30	64%
Terminator 2	STF 29	63%
Super Space Invaders	STF 30	63%
Strike Fleet	STF 30	63%
Hard Nova	STF 30	62%
Data Chess 2	STF 30	62%
Captain Planet and the Planeteers	STF 30	61%
The James Bond Collection	STF 29	57%
Action Pack	page 74	56%
England Championship Special	STF 29	56%
The Capcom Collection	STF 30	56%
Robozone	STF 30	54%
Thunder Burner	page 73	53%
Circuitry 1 and 2	STF 30	52%
Charge of the Light Brigade	STF 29	52%
Gauntlet 3	page 70	48%
Football Director 2	STF 29	43%
Booly	page 76	34%
Rugby Coach	STF 30	32%
Escape From Singe's Castle	page 70	31%
Indiana Jones and the Last Crusade	STF 29	26%
Moonfall	STF 29	24%

NOTE: Games in red are reviewed in this issue

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GAMEBUSTERS

Un Aprés Ski de Tips et Hints Bouffant Desirée. Un film de Ed Ricketts. Starring Sylvia Damage as The Woman with the Plaster, Franklyn Gothic as The Man with the Woman with the Plaster, and Rabid Twee as R Twee. Cert 18, smoking on the left

WHAT'S GOING ON HERE?



If you're a regular reader of *STF* you can safely skip this part without missing anything new. But for our new readers – what's this about, then? What are these strange words littered here? How can they help you if you've just bought an ST?

Well, it's no secret that some games are too hard. Even the programmers can't guarantee that they can play the whole thing, so they often put in cheat modes to enable them to test their games. It's usually activated by typing a word or phrase at some point. In Gamebusters, we give you those cheat modes. Or rather, you do – most of our cheats come from readers who have discovered the cheats by some means and decided to share them.

Other cheats include passwords to enable you to access higher levels (if the game uses that method), or just information you may find useful or invaluable when playing a game: coordinates, directions, maps, how to complete a certain level, things you need to collect in an adventure, and so on. We print anything and everything that we think might be useful to suffering gameplayers.

So, for all those readers who are new to *STF* and maybe new to the ST as well, here's a collection of some of the best tips we've had in the past, as well as Part One of a complete guide to *Magic Pockets* by its programmer. Regular readers bear with us – it'll be back to normal next issue. But now, on with the tips...

ADDICTABALL
ALLIGATA

Before pressing the space type IJC. To start on a certain level, press the appropriate F-key.

AFTER THE WAR
DINAMIC

During the first stage, press <Alternate> and B and 1 for infinite energy and time. Alternatively, press <Alternate> and M and 1 to jump to the second stage.

AMC
DINAMIC

Access codes NOSTROMO, DISCOVERY, ENTERPRISE, DAGOBAH, REPLICANT, KRULL, METROPOLIS.

ARMY MOVES
DINAMIC

For part two, the code is 101069. In part one, press <Alternate>, 1 and D for immunity. For the same effect in part two, press <Alternate>, 1 and J.

ATOMIX
RAINBOW ARTS

Press <Help> to enter password mode, then enter TIME for a frozen clock.

BAAL
PSYGNOSIS

Enter LOVEBUNDLE as your name in the high score table to use the game's trainer mode.

BACK TO THE FUTURE 2
MIRRORSOFT

First pause the game, then type THE ONLY NEAT THING TO DO (including spaces). You should have infinite lives and pressing Z skips a level.

BEACH VOLLEY
OCEAN

Type in DADDY BRACEY. Now pressing F1 skips levels.

BLOODWYCH
MIRRORSOFT

Buy something as normal until you get to paying the creature. Put an object in the transfer slot instead of money. The creature moans a bit but gives you what you want.

BOMBUZAL
IMAGEWORKS

Level codes: ROSS, TREE, RATT, LISA, SINK, DAVE, BIKE, IRON, BIRD, BIRD, LEAD, TAPE, WEED, VASE, RING, PILL, GIRL, SPOT, GOLD, PALM, OPAL, LOCK, SONG, SAFE, FIRE, WORM, LAMP.

BSS JANE SEYMOUR
GREMLIN

Level codes: SLUMBER, INTEREST, BULKHEAD, SHOWROOM, MUSHBASH.

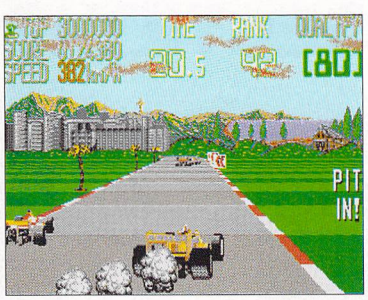
BUILDERLAND
LORICIEL/ INFOGRAMES

Reviewed yonks ago but only just available. Here's the level codes courtesy of The Man with the Stick from A Studio.

LEVEL 1: BUILD1
LEVEL 2: YOTTHA
LEVEL 3: BEARBY
LEVEL 4: OCTOPY
LEVEL 5: DIABLO
LEVEL 6: GOTIU

CONTINENTAL CIRCUS
VIRGIN

At the starting line when the first red light comes on, push the joystick forward, pull back for the second and push forward for the green light to get off to a good start.



● The hotel offers a wide range of leisure activities, including Formula One Grand Prix on our small but luxurious racing circuit in the back garden. Please ask the driving instructor for more details.

CRACKDOWN
US GOLD

Pause the game and enter the word SMURF. Pressing F1 and F2 now boosts both players' lives.

CYBERNOID 2
HEWSON

Type NECRONOMICON on the title screen for infinite lives.

DAYLIGHT ROBBERY
ELECTRONIC ZOO

Try these level codes on last month's Cover Disk demo.

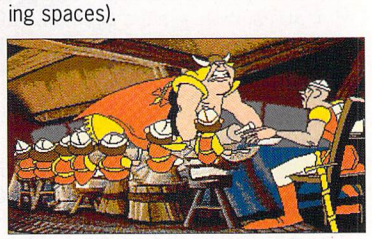
LEVEL 1: FIRST
LEVEL 2: DRILLS
LEVEL 3: ZOOOOO
LEVEL 4: BUSHES
LEVEL 5: MAYHEM
LEVEL 6: XAMPLE

DEFENDER 2
ARC

Type RAVEN while playing. After that I toggles invincibility and N teleports you to the next level.

DRAGON'S LAIR 2
EMPIRE

Press <Return> on the credit screen then type GET MORDROC DIRK (including spaces).



● A full cabaret show can be seen each evening in the main hall, featuring the talents of very our own seductive songstress, Marcella the Moist Mountain.

MAGIC POCKETS
RENEGADE

Sean Griffiths, the programmer who put together this excellent platform game, has decided to get it all off his chest and tell you just about everything you need to know. It's so huge though, that it has to be split over several issues. More next month!

GENERAL

The objective in *Magic Pockets* is to retrieve the toy in each level. The toys are all used as power-ups. As you progress, you see a number of arrows thrown from the kid's pockets. Each arrow thrown points to the toy's position on the background, relative to the kid. (Note: this is not necessarily the direction the kid should walk!) As the kid gets closer to the toy, more arrows are thrown from the kid's pockets.

The toy on Level One is the bike – pull down to pick up the bike. The kid then gets on. When on the bike, pressing <Fire> rapidly makes the kid pedal. If he pedals enough, the kid wheelies. At this point, holding <Fire> down cruises the kid along. The bike can be used to kill nasties – a wheelie kills nasties for double points! Taking the toy to the exit awards 5,000 bonus points.

THE GAMEPLAY

The *Magic Pockets* gameplay is quite complex. The simplicities are described here, but the sophisticated stuff is left for you to work out yourselves. Suffice to say – everything you do has a knock-on effect on the gameplay!

The first law to learn relates to the "kill count" concept. Each nasty "killed" increases the kill count – a "kill" is when a nasty explodes into sparks. This counter affects the bonuses that are awarded for bursting a trapped nasty. The next bonus is indicated "behind" the lives hand and the "power up" hand.

The second law concerns the "bursting" of a trapped nasty. The bonus sweets rewarded for doing this can be determined by you. The harder a "trap" is hit, the more bonus sweets are delivered – that is, falling from a great height bursts a trap into three or four sweets, as opposed to one or two.

The third law defines the gold stars effect. These are the player's way of gaining mega-power-ups. A gold star turns into a mega-power-up when touched. The gold star's contents are directly affected by the number of silver stars previously collected. Gold and silver stars are both mini-power-ups.

The fourth law concerns the mini-power-up bonuses. A mini-power-up can be created at every 5,000 points. To do this, trap a nasty and burst the trap. So, if you score 5,000 points, you are credited with a "power up," which is collected when a nasty is trapped and burst. So, if a bonus of 10,000 points is awarded, the player is credited with two power-ups, which are collected as the next two nasties are burst.

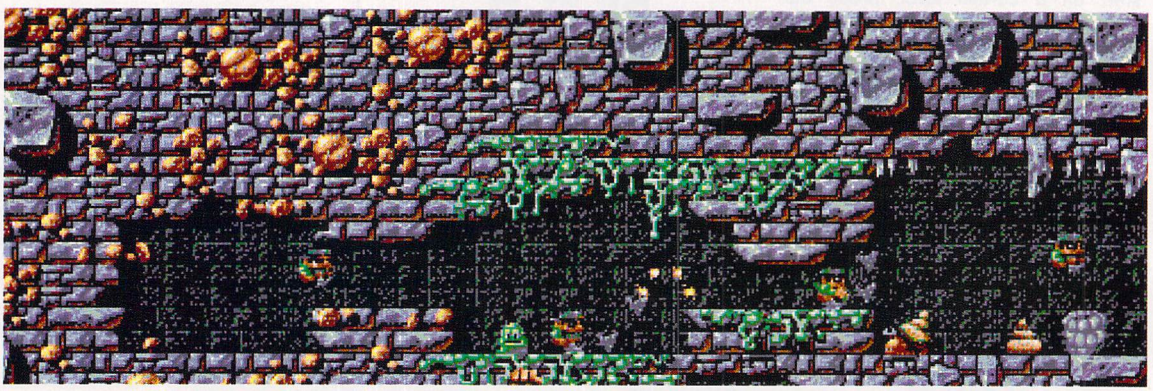
Every 100,000 points, the kid becomes super-powered. This means he gets all his lives back and is awarded with full fast-fire and full fast-power-up, and gets the power of the potion on that level. Initially, *Magic Pockets* may seem simple in design. However, repeated plays should reveal all sorts of hidden bonuses, play techniques, other power-ups and secret sections. The game logic is structured around the player's abilities – the better the player gets, the more he discovers.



● **"Why isn't the ice dissolving under water? Not too sure about this game." (Dr AFS Grope, Department of Pedantry)**

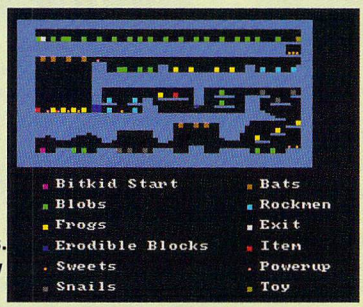
ADVANCED PLAY TECHNIQUES

1. It is always possible to rattle up a high kill count, then trap a number of nasties at the same time (ensuring all the traps deliver the same bonus). Then spinning and hitting the traps bursts the



THE CAVE SECTIONS

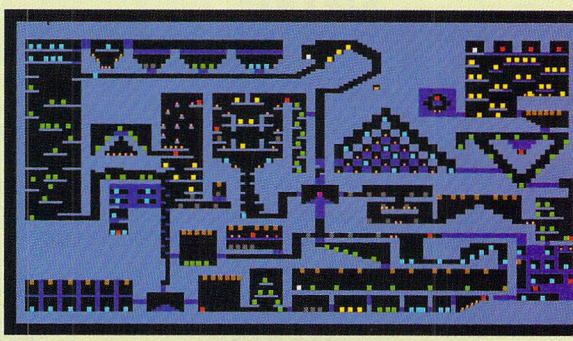
CAVE SECTION ONE



One: The trainer section. This should introduce you to the basic techniques. Shoot Blobs and Snails, spin into Bats. You have now killed eight nasties. Play to trap the two Blobs at the end, and spin into them. You should get a good bonus of wine gums, then use the cocktail. This always sets you up with over 10,000 points. By killing the next few nasties, you should be able to pick a couple of power-ups off. Watch for the Frog by the TV – he takes ten hits, but is worth 1,000 points. The aggressive Rockmen by the coin pile can best be killed by jumping off the ledge onto them. Break the blocks into the pit and get ready to spin. Get rid of the Frogs as quickly as possible. Try not to pick up the milk until you have lost a life, otherwise you waste it! There are two Bats that attack next – keep spinning because these are tough! Use the previous right hand section to hide if necessary. Pick up the silver star and use the bubble gum to drift up, but take it easy: there are another four bats at the top, though these are passive. Land on the right and pick up the gold star. Normally you get a transporter here, and a secret room delivering fresh life and a protection mask. If you choose to collect more silver stars as power-ups along the way, the gold star becomes a more powerful weapon. If you have problems with the next corridor, then this could be good strategy. Jump up and then spin to get to the bike. Press <Fire> rapidly to get into a wheelie and wipe out the Blobs. You should get a score of about 60,000 points. If you're good, you get 100,000 points. Try to beat 140,000 – that's the best we've got!
NB: The second secret room. You get to the second secret room by creating another transporter from a gold star. This room has a bat and gold star in it. Turn the gold star into a third transporter to skip the whole of Level One with a big bonus!

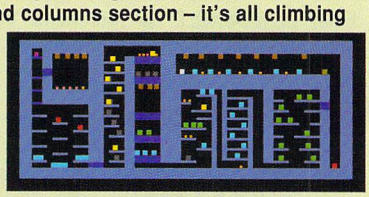
CAVE SECTION TWO

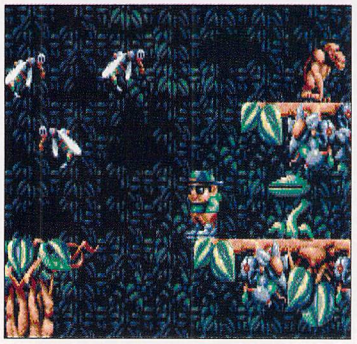
Two: Where do I start with Section Two? It's *huge!* Over 100 screens went into designing this section. Every type of power-up and bonus can be found in this section if you're prepared to explore. Choose your direction and set off. Follow the arrow if you wish to find the bike and exit quickly. Watch out for the super Rockman – he's after your bike, too. Ignore the arrow and explore the cavern at your peril. There are also loads of secret rooms – try and find the sweet machine room, jelly baby room, and the extra credit room.



CAVE SECTION THREE

Three: Now things start get a little bit trickier. This is the pits and columns section – it's all climbing up and falling down from here. Don't miss out on the secret section to the right of the start. There are power-ups scattered around the floor, but the Bats are tough, so spin in





● **"In real terms, mosquitoes have grown by over 200% since the post-war years," said a spokesman.**

traps to reward (5*sweet)*traps. This is one of the most rewarding play techniques.

2. Living jelly babies. The "alive" jelly baby is delivered from a jelly baby trap that rewards three or five jelly babies. He shoots up into the air, lands and runs away from the player. Catch him for 5,000 points. Try combining with the above technique!

3. Easy Transporters. Score 10,000 points without collecting any power-ups. Kill ten nasties to select a gold star. Trap and collect. Bursting the trap clears the "kill count," setting the next "power up" to a silver star. Leave the gold star untouched, trap and collect the silver star. Now pick up the gold star in order to give a transporter helmet.

4. Anticipating super-power. Every 100,000 points, the kid is fully powered up. This is very useful if timed right, and awarded on the tougher levels. As you approach 100,000, slow down your scoring method and rush to reach the exit. With your end-of-section bonus points, you should top up your score, carrying your super-power into the next section.

5. Maximising the Pop Bottle. When you pick up the pop bottle, a shower of sweets falls down the screen. At first, it may seem only polos or aniseed balls fall out. However, the pop bottle uses the kill counter. If you create a pop bottle from a trap, the bursting clears the counter. If you do this before picking the bottle up, go around and kill some nasties. The points you collect are calculated (10*kill count)*100.

END OF SECTION BONUSES

There are six types of bonus awarded when you exit a section. These are:

1. Kill bonus. Every time you kill a nasty, a section "kill count" is incremented. This is then multiplied by 100 and added to your score. If you kill all the nasties in the section, then a bonus of 20,000 points is awarded.

2. Toy bonus. If the toy from that level is taken through the exit, you are awarded an extra 5,000 points.

3. Lives bonus. The lives bonus is set to 20,000. If you exit a level without losing a life, this is awarded. If you lose a life, the bonus is reduced to 5,000, and subsequent lost lives subtract 1,000 points from this bonus.

4. Helmet bonus. A bonus of 5,000 points for exiting the section with any helmet on (not the diving helmet).

5. Star bonus. For every silver star that has been collected and not used, 1,000 points is added to the score.

6. Warp bonus. For those players who choose to skip a level by warping a "compensation" score is awarded. This is always 200,000 points.

THE GREEN FRUIT DRINK

This may seem to be a relatively useless power-up – it awards a bonus in the next section. But the green drink holds many a mystery. If you pick it up, certain other bonuses change. The pop drink now delivers a spread of sweets, regardless of the "kill count." The 100 points sweets are replaced with red drinks (random points) – very effective if you have a habit of trapping and bursting without killing any nasties. The green drink does other things as well, but they're for you to work out!

THE LEVELS

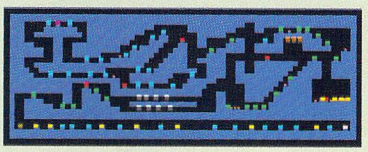
There are four levels in *Magic Pockets*, each with a different style and play method. In the cave, there are a large number of erodible blocks (they look smooth and roundish). These are designed to hide sections of the game. In the jungle, there are plants to grow, creating platforms, again opening up hidden sections for you to explore. The lake can be split into two styles: underwater and above water. Above water a variation is introduced in the form of the water's surface being "freezable." Below water, the game changes completely – no jumping or spinning, just swimming. The mountain has a style change, too. The move away from rock to metal platforms means these sections take on a "jump from platform to platform" feel (as opposed to exploring).



and keep spinning. Then drop down into the pit, and get the fireballs to the right of the TV. Be quick, because the ledges soon swarm with Rockmen – they're not after you, but they are very "busy." Use fireballs to dispense with them. Climb the next section – spin if you can't jump. Note these nasties get tougher as you reach the top. You should be able to kill the next Frog: try throwing forward – you can hit him but he can't hit you. Cut away the floor blocks to go down. Try to fall on as many nasties as possible – they're all tough from now on! The bubble appears as you drop down this section as you fall past the exit. The bubble takes 30 hits – try to blast it away for a bonus, otherwise it takes all your power-ups away (including silver stars and fruit drinks). Climb the next wall, spin to kill these nasties, and drop down. There now follows a "ladder" with Rockmen on it. These guys are all "passive" and get tougher towards the top. Try to get power-ups out of these. The next section contains Blobs. Here we test your spinning skills since you have to spin to get to each platform. The wall on the right is erodible at the top. Escape this pit here. Drop down a long thin cavern and "pick up" the bubble gum at the bottom. Drift to the top and "pick up" the bike. Be careful not to drop back down the pit, since you lose your bike. Now race along to the exit and collect your bonus.

CAVE SECTION FOUR

Four: This is the maze. This section is very tricky at first, so a map of the section is useful. After you have explored this section, it becomes easier. Try to pick up the power-ups, extra lives and bonuses that are scattered around. The section to the left has loads of Rockmen in it; some are passive and some are not – be prepared. The section to the right has blobs circling round it. Watch out for pits that you can get stuck in. Try to get to the secret rooms – they are very rewarding. Also there is a super Rockman here – he starts at his hut! Stop him getting to the bike – it makes things much easier. If you find the final corridor too tough, play to get a gold star just before you drop into it – even a face mask helps.



CAVE SECTION FIVE

Five: Ignore the cocktail on the left – it is merely a distraction. There is a Blob on the right who attacks you straightaway if you don't move. The best way to deal with him is to spin or jump over the ledge. Once you have killed the nasties at the bottom, go after him and his friend (two of them are trying to get you) – otherwise they hassle you. Next, don't cut away the erodible wall, go over the top and drop on the next lot of blobs. Then, carefully cut away at the next wall and climb up it to get the bubble gum. If you mess this up, you have to go back to the previous wall, and spin from the top ledge to the gum machine – it is possible! Pick up the gold star, and protect yourself. (Try to go to the secret room next time!) Take this corridor slowly, and you should have no trouble. "Pick up" the bubble gum at the end, and rush to the top ledge. Spin across the two ledges, and spin again. These bats are *hard* but that should have dealt with them. You're now approaching the end of the level – things aren't easy. Climb the erodible wall and kill the blobs from the top. Trap these Frogs – get what power-ups you can out of them. There is a section to the right with three Rockmen in, and a big bonus. They are the toughest in the game. You're better off dropping down onto the snails, and taking on the bats. Next, drop through the floor and cut away the wall. A couple of spins could deal with these nasties easily! Take the exit in front of you.



The Bike Race: Six super Rockmen and seven bikes. They drop from above and are hell bent on beating you. If you stand still, you get kicked around, so jump or fire. Run to get the closest bike, and pedal like mad. Jump over the snails or they slow you down. Get into a wheelie and you're likely to get a bonus.



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DRAGON BREED
ACTIVISION

After a level, and while the next one is loading, hold down the left mouse button, <Delete> and <Help>. When the screen flashes, you can skip levels by pressing one of the keys on the keyboard.

DYNAMITE DUX
ACTIVISION

Type CHEAT on the title screen to get infinite lives. F1 to F6 skips levels. Enter NUDE to play the boxing subgame.

DYNASTY WARS
US GOLD

Type CHEAT MODE on the title screen. While you're playing, F2 skips a level.

ELF
OCEAN

Type CHOROPOO during the game to get yourself 99 pets – handy at shops. Huzzahs to **I Hooper** of **Somerset.**



● The back of the hotel is usually out-of-bounds to the guests, but, for a small fee, a guided tour can be arranged. Tickets are available from the lobby for $1,324 and a grapefruit.

E-MOTION
US GOLD

On the title screen, type E-Motion. Now F1 advances a level, F2 advances ten levels, F3 goes back a level, F4 moves back ten levels.

ENCHANTED LANDS
THALION

On the intro screen type TCB RULES FOREVER and the screen should flash. Pressing F3 enables you to enter an edit and F2 followed by a space takes you to the end of level guardian.

E-SWAT
US GOLD

Type in JUSTIFIED ANCIENTS OF MU MU while the game is paused – the border flashes and you get 99 lives.

FLOOD
ELECTRONIC ARTS

Enter the password MEEK and you can pick any level you want.

GHOST-BUSTERS 2
ACTIVISION

When the word ACTIVISION comes onto the screen, press <Control> and <Alternate> and S and U to get a variety of effects.

GHOSTS AND GOBLINS
ELITE

On the credit screen, type DELBOY. The words CHEAT MODE ACTIVATED should appear and you are now invincible.

HAMMERFIST
ACTIVISION

When you've got a high score, enter TAEHC OT TNAW (including spaces). F7 now takes you to the next level.

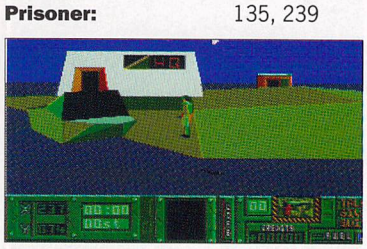
HORROR ZOMBIES FROM THE CRYPT
MILLENNIUM

Hold down M and "," and "." for infinite lives.

HUNTER
ACTIVISION

Make the game completely pointless by having all the coordinates to hand. Cheers, **Jack Gilbert** of **London.**

Security pass:	90, 153
Master key:	164, 169
Old man:	181, 197
Second man:	99, 61
Third man (in rock):	195, 119
Professor:	49, 115
Prisoner:	135, 239
Injured man:	10, 36
Antibiotics and saw:	151, 121
Monk (in tree stump):	85, 174
Scroll:	91, 173
Disk:	100, 225
Computer:	244, 199
General's bunker:	135, 239
Officer's red uniform:	190, 65



● We hope you enjoy your stay here at the Hotel Alhambra. We seriously consider any complaints you may have before bundling you off in a small boat and dumping you on island with just an HQ and a seagull on it. Solicitor's telephone numbers are available from the lobby. (If you can find the lobby from there.)

General tips: always have at least one fuel can, and, if possible, one medical kit, wherever you go. The best vehicles are hovercrafts, helicopters (the faster kind), rocket boats and jeeps. Always try to have a vehicle that can travel over water, unless you're on a large expanse of land. Use your aerial observation units when approaching a target, because if there are SAM launches and you're in a helicopter, it may be wise to find a boat to go in with. Always stay at a high altitude when travelling through enemy territory. Always take the safest route, not the quickest. And finally, only swim short distances.

IVANHOE
OCEAN

Pause the game, then type in JC IS THE BEST <Return> (including spaces). Unpause. N advances you a level, <Delete> kills all on screen, "," for extra levels. <Control> kills the big guy on bonus screens.

JUMPING JACKSON
INFOGRAMES

Some codes to try: KAYLEIGH, ALCHEMY, OCTOBERON, TANGRAM, INCUBUC, SIRIUS.

KICK OFF 2
ANCO

Keep pressing R when taking a penalty. This shows you where the player's going to kick the ball.

KID GLOVES
LOGOTRON

Pause the game and type in RHIANNON and hit F9. Unpause and you should be invincible.

LEMMINGS
PSYGNOSIS

On the title screen, type FQUIGGLY to activate the cheat modes.

MEGA LO MANIA
IMAGEWORKS

Still having epoch trouble after our extensive guide over the past months? Try these passwords from **John Keenleyside** of **London.**

EPOCH	PASSWORD	MEN
1st	UWIANCYIWMD	100
2nd	CKPCHDQGIHJ	170
3rd	BOYBZGHWSHT	225
4th	FWBDXZCDXBR	624
5th	BYPCHZNYUHN	630
6th	PDSDFOIAXHL	620
7th	YLHBDNKDIBB	600
8th	SMQCTGFDOTL	580
9th	SUDCNQTMAMB	380
10th	RGFDHVVYKGF	420

MIDNIGHT RESISTANCE
OCEAN

On the title screen, you should type SAMANTHALYON in order to gain infinite lives.

MIDWINTER
RAINBIRD

During the game, switch from skiing mode to sniper mode, then go to maximum zoom. You should then be invulnerable.



● Winter hobbies include skiing, sledding and Running Away from the Missile. But remember to wrap up warm – why not visit our winter-wear department store, situated in the lobby?

MONTY PYTHON
VIRGIN

Type SEMPRINI as your name on the high score table and you can choose to start on the level you died on.

NAVY MOVES
DINAMIC

786169 is the code for part two.

NITRO
PSYGNOSIS

Enter MAJ as your name to get 5,000 fuel and 50 credits.

ONSLAUGHT
HEWSON

On the map, press F9 and F10 together. You can now edit the map using the cursor and F-keys.

OPERATION THUNDERBOLT
OCEAN

Enter the following key sequences to have laser sights throughout the game:

Player one	F8 F7 F6 F5 F4
	F3 F8 F1 F1 F1
Player two	F8 F7 F6 F5 F4
	F3 F8 F2 F2 F2

PIPE MANIA

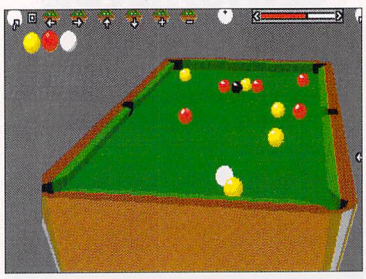
EMPIRE

Level codes: BALL, BLOB, WILD, DOCK, GRIP, TICK, OOZE. Incidentally, try filling the screen with pipes to get a hugely big bonus score.

3D POOL

MIRROR IMAGE

Here are the solutions to the 20 trick shots in *3D Pool*. All you have got to do is set the position of the table to these figures and then just watch the results.



● Our pool tables have been specially crafted by Blind Jimmy, the oldest pool table manufacturer of all England (though there's some doubt about Dave "Dead" Smirnoff). Balls are available from the lobby at $920 each.

Shot 1	0768 024 63 10
Shot 2	1002 041 63 09
Shot 3	0032 100 63 00
Shot 4	0962 024 63 00
Shot 5	0512 024 63 10
Shot 6	0405 060 63 20
Shot 7	0018 061 63 20
Shot 8	0771 099 56 12
Shot 9	0932 024 63 11
Shot 10	0927 027 63 20
Shot 11	0751 100 16 20
Shot 12	0916 025 55 10
Shot 13	0004 054 58 20
Shot 14	0864 100 63 10
Shot 15	0084 076 12 00
Shot 16	0880 048 39 20
Shot 17	0372 100 63 10
Shot 18	0512 100 63 10
Shot 19	0601 024 63 20
Shot 20	no solution: define as you wish

RAINBOW ISLANDS

OCEAN

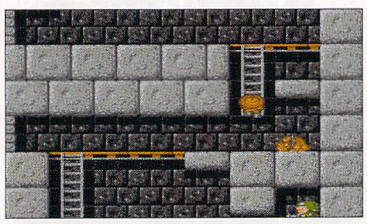
On the title screen of this game, type in one of the following codes. If the code is accepted, an enlarged version of the relevant object appears on the screen.

BLRBJSBJ	Activates permanent Magic Shoes.
RJSBJSBR	Activates permanent Double Rainbows.
SSSLLRRS	Activates permanent Fast Rainbows.
BJBJBJRS	Activates Hint A.
LJLSLBLS	Activates Hint B.
SJBLRJSR	Activates Hint C.
LBSJRLJL	Activates The Book Of Continues so you can continue after Doh Island.
RRLLBBJS	All hidden bonus objects become money bags.
RRRRSBSJ	Activates the two above cheats.
SRBJSLSB	Increases the score counter to ten million points.

RICK DANGEROUS

FIREBIRD

Press T when the game is loaded and you are asked whether you want infinite lives or not.



● Visit our dungeons for those wild wild parties. Why not indulge in a relaxing game of Murder in the Dark? But ensure you're insured. Full cover is available in the lobby.

ROBOCOP

OCEAN

Pause the game then type in BEST-KEPT-SECRET to get infinite lives.

ROLLING THUNDER

US GOLD

Type JIMBBBY <Return> on the title screen to get infinite lives.

R-TYPE

ACTIVISION

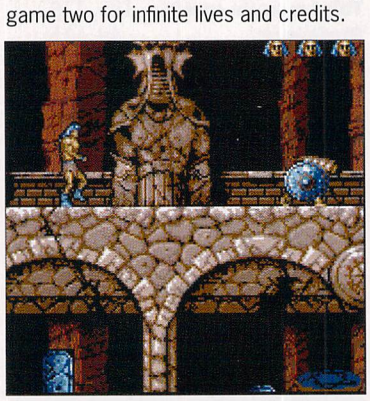
When you are asked for the second disk, press <Help> then type ME and press <Cursor up>. During the game the F-Keys are now active:

F5:	Invincibility.
F6:	Lasers do not harm you.
F7:	Infinite credits.
F8:	Enables another player to play using the mouse.

SATAN

DINAMIC

Hold down <Alternate>, 1 and D during game one to get infinite lives. Hold down <Alternate>,1 and M during game two for infinite lives and credits.



● For the more daring, a ritual suicide takes place each evening from the roof of the Alhambra. Megaphones, blankets and big bouncy things to land on optional.

SIM CITY

INFOGRAMES

Type MONEY while playing the game to get an extra $10,000.

SKIDZ

GREMLIN

During play, hold down <Alternate> and press C to get infinite energy and M to skip levels.

SLY SPY

OCEAN

Enter the code number 007 then, while playing, type in SHAKEN NOT STIRRED. You now have infinite credits.

SPACE ACE

READYSOFT

Pause when Borf comes to attack you, then type in GODEMODEXTER. Press <Fire> and tap <Enter>, then unpause and carry on playing. Instead of dying, the game plays through to the end.

STRIDER

US GOLD

Pause the game and hold down <Help>, <Left Shift> and 1. Release the keys and unpause. Keys 1 to 5 put you on different levels and F1 to F4 put you at different places on the level.

SUPER GRIDRUNNER

ACTION SIXTEEN

Pause the game and enter PINK-FLOYD-ARE-GODS.

TEENAGE MUTANT NINJA TURTLES

MIRRORSOFT

When asked for a code enter 8859, and then 1506. On the third time, enter the correct code. During play, pressing <Help> gives you infinite lives.

TIME MACHINE

ACTIVISION

Enter DIZZY into the high score table for infinite lives.

TORVAK THE WARRIOR

CORE DESIGN

Enter CHEAT... (as many full stops as you can fit in) on the high score table. Now hold down <Fire> and press 1 to 5 to be moved between levels.

FORMAT NEEDS *YOUR* TINTS AND HIPS

Yep! Slubs, perks, gids, aglets – all those silly words you type in to exist into perpetuity and achieve higher scores – we want them all! If you've any weird and wonderful words that enable you to access higher levels, tips, cheats, short cuts, infinite lives pokes, passwords, map – anything at all you've found that helps you get more from your ST game-playing – we want to hear about it! That way you can share your tips with well over 70,000 fellow ST enthusiasts, and possibly win *FORMAT's* monthly prize of £50. It doesn't have to be a complete solution or anything – *whatever* you've got could be the answer to a fellow ST game-player's prayers!

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Address _____

_____ **Daytime phone** _____

Brief description of tip _____

_____

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❷ MODEM



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❸ ROBOTICS



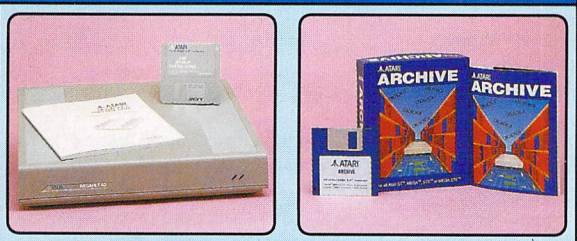
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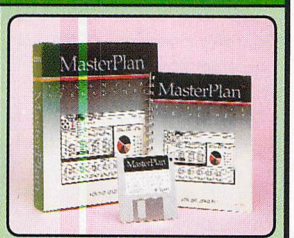
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❻ DTP GRAPHIC APPLICATIONS

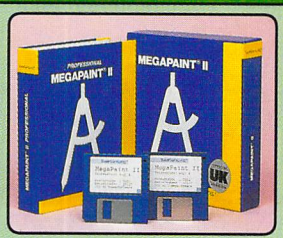


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- *Printer resolution (even lasers) on screen*
- *User definable symbol libraries*
- *Mixture of CAD, drawing and painting features*
- *Huge range of tools*

TOMMY SOFTWARE RRP: £99.95 **£89** Order Ref: SSM 3392



MEGAPAINT II PLUS

Professional version of MegaPaint II, includes bit map and vector graphics drawing tools, massive range of features and fast interface. Supports large screens, networks and TTs.

- *Multiple layers, both vector and bit maps*
- *Massive selection of tools and facilities*
- *Works at very high resolutions on screen*
- *Compatible with Pagestream, Calamus and TimeWorks*
- *Very fast operation*

TOMMY SOFTWARE RRP: £249.95 **£199** Order Ref: SSM 3552

❼ B/W SCANNER



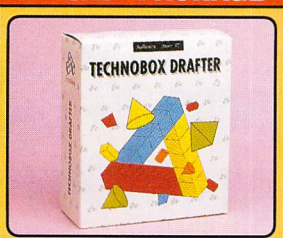
DAATAscan PROFESSIONAL

Allows graphics to be scanned in to the Atari ST and used in graphic packages or DTP programs. An ideal all-in-one solution for your black and white scanning requirements.

- *Professional scanning software supplied*
- *Switchable resolutions: 100-400dpi*
- *High-speed printing option to laser printers*
- *105mm scanning width*
- *Compatible with DTP & graphics packages*
- *Hand held scanner*
- *Up to 64 grey scales*

PANDAAL RRP: £189.95 **£169** Order Ref: SCA 2325

❽ CAD PACKAGE



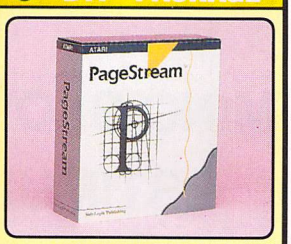
TECHNOBOX DRAFTER 2

A powerful, low cost CAD package. Quickly becoming the leading ST CAD system TechnoBox provides every facility the serious CAD user will require.

- *Very easy to use interface*
- *Colour support in high resolution*
- *Massive symbol library*
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- *Up to 9999 layers*
- *Complete dimensioning*

Technobox RRP: £299.99 **£199** Order Ref: SST 1222

❾ DTP PACKAGE



PAGESTREAM 2

PageStream 2 is a full and comprehensive DTP package. You can create letterheads, adverts, manuals, in fact anything requiring text and graphics to be mixed on a page.

- *CompuGraphic on-screen outline fonts*
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- *Compatible with the majority of printers*
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Soft-Logik Publishing Corporation RRP: £199.95 **£169** Order Ref: SSP 0122

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Which computer(s), if any, do you own? .....

69

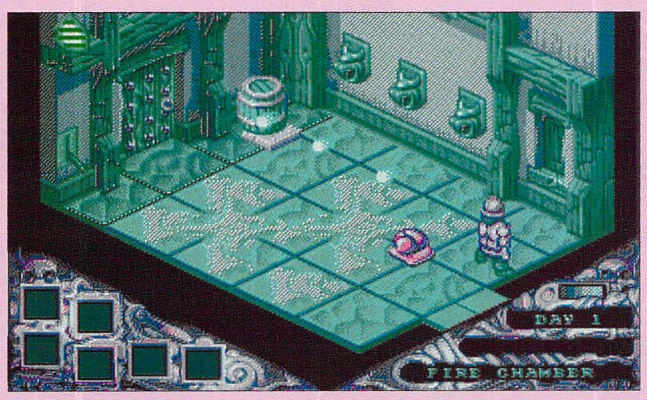
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CADAVER – THE PAYOFF

RENEGADE

Surrounded by locked doors? All confused by nasty things trying to hit you?
You need the next part of Darryl Wedgner's solution begun in *STF* 28. Take a deep breath, here goes...

Search barrel for loaf. W. Move stick across end posts. Take sack of rocks to kill bubbles. E. N. Kill bubbles for key. N. N. E. Take shuriken and red casket. W. Kill eyes, insert key in North door. N. Open chest, take sack of stones, open cabinet for activate spell. S. S. S. S. S. W. S. S. Use activate spell. E. Take flask of stamina, open chest for superfast potion. N. Open chest for spider potion and massacre spell, translate spell, cure poison flask, use translate spell on book in cabinet. S. W. W. Pull lever. E. N. E. N. W. Cast massacre spell, take gold, drink immortal potion. W. Jump on hopper's back. When hopper jumps, jump to platform. Pull lever. S. Pull lever 6x, press button. Take dispel curse spell. S. Take sack stones. Search pillow for key, pull lever, take stamina. W. W. Kill bubbles – shoot through the bars, make platform with objects. Pull lever, jump over bubbles. S. Take two rocks. W. N. N. Pull NW lever – run anticlockwise along walls. Pull NE lever. Take bless magic spell and rocks. W. Kill eye. Take key and stamina. E. E. Take three coins. Search corpse, run for lever and pull, take key. Unlock E door with wand. E. Open chest for shuriken, W. W. S. Insert key. Use unlock door wand on E door. E. Kill bubbles, read books, take jade. W. W. Take key, open box for two caskets. Pull lever. E. S. Kill eye, drop six rocks in barrel. Open box for tiger's eye. E. N. E. N. N. Insert key, open red casket for ruby. N. Take superfast potion, insert spider poison in barrel, search barrel for key and orb. S. W. Search corpse for evil gem. E. N. Pull lever. N. Drop evil gem. S. E. E. E. N. N. Insert key. W. W. S. W. W. Pull lever. S. Take gem. N. E. E. E. Place gem on altar, kill bubbles for key, open chest for magic missiles and dispel traps. W. N. E. E. E. Dispel trap on box, open for talk to dead spell. W. Talk to corpse to be blessed. S. S. W. W. S. Dispel trap, open chest for money and freeze orb. Take coins, search barrel for turn monster orb. S. W. N. W. Bless magic missile wand, turn monsters and kill. Read note and follow instructions. W. Drop three objects jump up and across to lever. Pull lever and take key. W. S. Put shield between bars to keep them open, kill bubbles for activate spell. E. Take coins, money bags and stones. Open box for shuriken, open chest, insert armour for keyhole to appear, insert key. W. Press left button – number nine. W. Take sandstone. S. Kill bubbles, use activate spell. W. S. Kill bubbles. E. E. S. Drop sleeve armour in between hole and key. Insert sandstone in hole, push button to move key. Repeat until able to take key. E. Take freeze orb, unlock chest spell, read book, insert key. W. N. W. W. N. Kill hopper for key, open left then right doors for ram's skull. S. S. Drop red casket, dispel trap, unlock chest with spell, open casket for three keys, insert home key in earth hole. S. Freeze bubbles, insert Venus key in second hole, Mercury in inner hole, pull lever. S. Read book, throw ram's skull on altar. Take key, open chest for key, strength potion, turn monster spell and reveal spell. N. N. N. E. N. E. N. W. W. Kill bubbles, take mind blast. W. Unlock door. W. Drink strength potion, move barrel and pull lever. S. Take two turn monster spell, key and mayor's crown. Open chest for superfast potion and freeze spell. Open chest for money. N. E. E. N. Pull lever, drop two helm. Jump up on post and across. N. Freeze eyes and kill. Insert left key. E. N. Pull levers. W. Kill eye, take key, immortal potion and wand. Unlock door. E. Unlock door. S. W. Insert right key. W to Level Three. Right, you can breathe again now – until the next time, at least.



● **Boar's head number One: you're out on the town and you're accosted by a drunk. Do you (a) run away, (b) give him some money, or (c) follow him to the nearest illegal drinking joint?**

ANARCHY ACADEMY

MIND BLOWING 3-D GRAPHICS INCORPORATED INTO A STIMULATING AND EXCITING ADVENTURE GAME

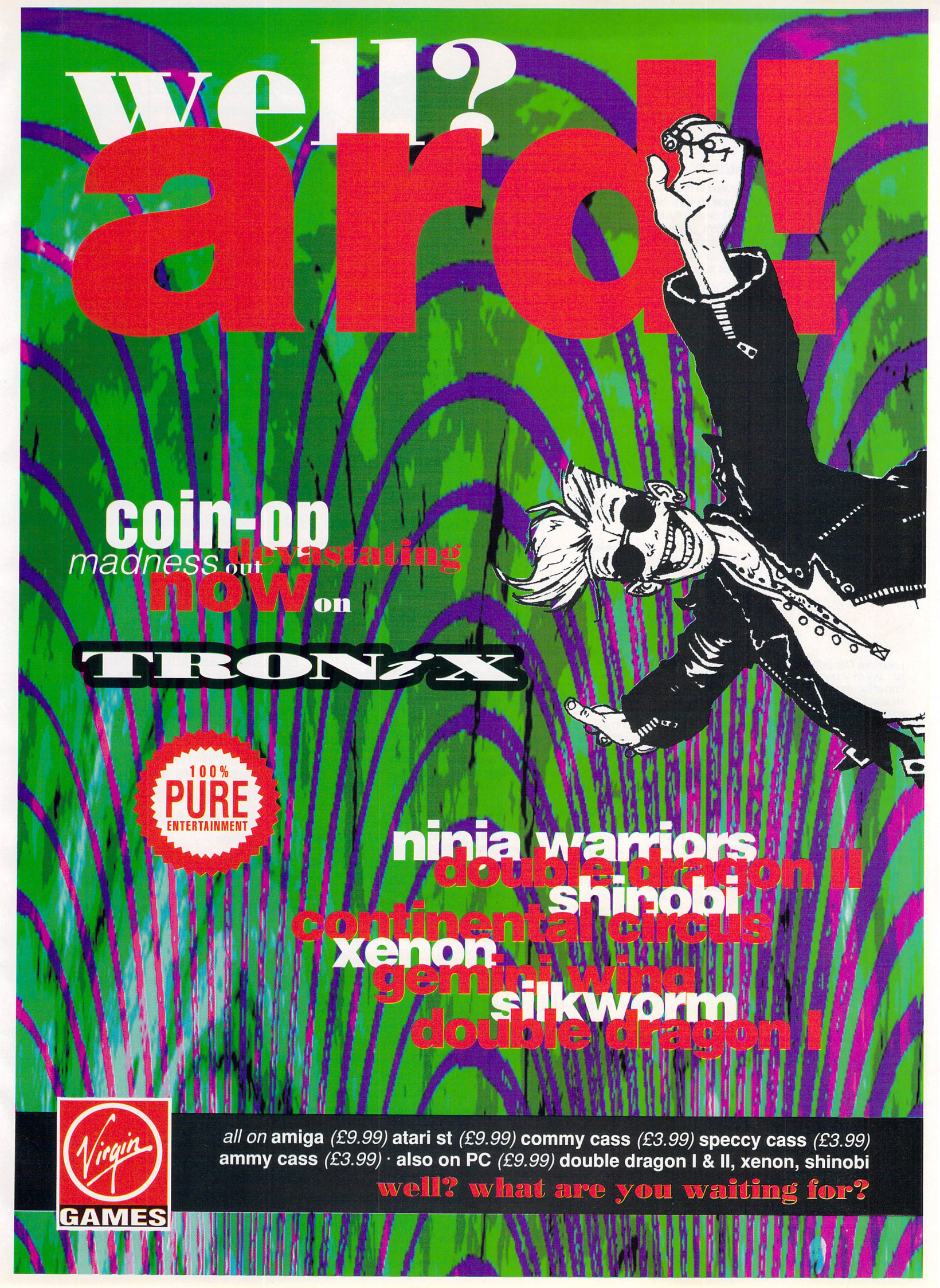
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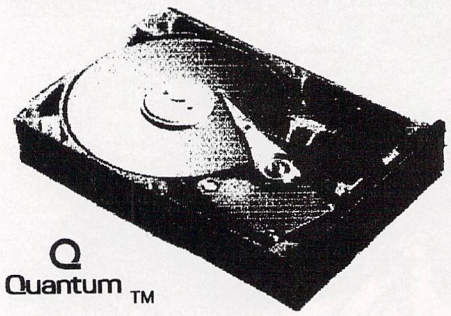
Data Pulse

Hard Drives

Quantum Mechanics

The cached Quantum Mechanisms used in the Data-Pulse range of Hard Drives are made to very high American Military standard and are covered by a 2 year manufacturers warranty (from date of manufacture). They are all 3.5" mechanisms with a height of just 1 inch and integrated SCSI controllers. They have an average access time of 11ms utilising a 64K look ahead disk cache.

All Mechanisms used are Autoparking reducing the risk of damage during transit. They are also very low power which means they can operate without the need for a fan, thus reducing noise.



Quantum ™

Data Pulse Hard Drives

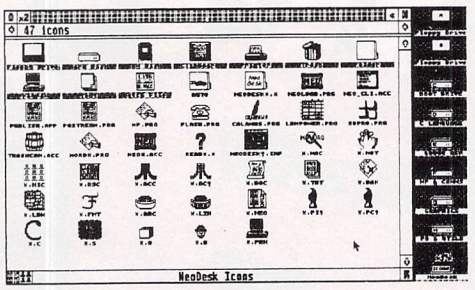
The Data Pulse range of drives come in a variety of capacities and include the following.

- *Full Metal case providing good shielding and can be used as a monitor stand.*
- *On/Off switch and DMA device selector mounted on front.*
- *Integral PSU.*
- *DMA Out for Daisy chaining.*
- *Space for second mechanism internally.*
- *Choice of controller boards (prices differ): GE-Soft board or ICD board(with clock).*

Both boards have a data transfer rate in excess of 1Mb per second. Both come with formatting and partitioning software.

- *All drives come with a range of PD utilities and Turtle Backup software, plus demo's of Midistudio and Midistudio Master.*

Special Offer



NEO Desk 3 Special Offer

Due to the popularity of our hard drives and bulk purchasing power, We can now offer NEO Desk 3, the replacement desktop which was voted "Software utility of the year" for 1990 by ST Format readers, to buyers of our hard drives for just an extra £24.99. We can also offer this perfect hard drive companion to all existing Ladbroke Computing Hard Drive owners (Phone for details).

NEO DESK 3 ™

"Neodesk 3 is truly invaluable for the ST owner."
-ST Format-

New Prices

52Mb 11ms (GE-Soft)	£ 369.99	52Mb 11ms (ICD+clock)	£389.99
105Mb 11ms (GE-Soft)	£ 489.99	105Mb 11ms (ICD+clock)	£499.99

All prices include VAT & Delivery. Dealer enquiries welcome.

Aries Upgrades

Ladbroke Computing have been active in the field of ST Memory upgrades for a number of years and can offer upgrade advice and solutions for the entire range of ST's. In that time our engineers have gained experience in the field and have used that experience to research and develop our own range of upgrade boards.

We have developed our own .5/2/4Mb upgrade board using an in house designed, Multi layer circuit board which measures just 52mm x 62mm, smaller than a credit card. We have achieved this miniturisation by utilising 4 Megabit memory chip technology. The result of this reduction in size is a reduction in cost and more reliable operation, due to the fact that the board resides under the ST's shielding protecting it from interference and reducing Electromagnetic emissions.

The board is manufactured in the U.K and hand assembled in our workshops by skilled technicians. The boards are then thoroughly tested before despatch.

The board now comes in three configurations, .5Mb, 2Mb and 4Mb. By using high density ZIPP RAM chips of different capacities it is possible to start with a .5Mb board and to upgrade it to 2Mb and then 4Mb at a later date.

The boards require some soldering, due to the instability of some plug in devices, but are very easy to fit and come complete with full instructions to fit ANY ST including Mega's(except STE's which use SIMM boards). If your shifter chip is not socketed, you will have to desolder it and install a socket which is supplied.

To check your board has been installed correctly we supply you with a disk which has a memory check program. If for any reason your upgrade should refuse to work we have skilled technicians on hand to offer technical support.

IMG Scanner for ST Still available. Requires 9 pin Epson compatible printer to operate. Best results obtained from Photocopies. Now only £29.99

Our 1/2Mb upgrade board can now be upgraded to 2Mb and then 4Mb

Aries Upgrades (Any ST(F)(M))

512K Upgrade Board	£39.99
2/2.5Mb Upgrade Board	£99.99
4Mb Upgrade Board	£169.99

Our skilled technicians can install the above upgrade boards for £20 including VAT and return delivery.

4 or 16 chip STF(M) only **£29.99**

Aries Upgrades STE

512K SIMM's upgrade	£24.99
2Mb SIMM's upgrade	£74.99
4Mb Simm's upgrade	£149.99

All the above prices include VAT & Delivery. Please check configuration of your machine with our staff before ordering chip or SIMM's upgrades.

Midistudio Master

Now £99.99

- ☑ 100 tracks storage, 20 tracks playing simultaneously.
- ☑ 240 ppq resolution.
- ☑ Midi Standard File format option.
- ☑ Realtime scrolling arrange window.
- ☑ 11 levels of quantise, including humanise.
- ☑ Pipeline/Module system.
- ☑ Loop record.
- ☑ Midi soft keys.
- ☑ Works on 1040STF(M)(E)

Midistudio Junior Now £29.99

ST Secure £25

ST Secure is a hardware protection system for the Atari ST. ST Secure can stop unauthorised use of the ST computer and any hardawre connected to it using a combination of password software contained on a "key disk" and a hardware unit which installs inside the ST's case.

The hardware unit measures just 1 inch square and can be installed very easily in about 30 minutes and does not require any soldering.

Once installed the hardware unit will allow approximately 45 seconds of computer use before resetting the computer. If during this time the password is entered correctly then the unit is disabled until the next power up.

Ladbroke Computing International

Please Read: Terms of Sale.

Ladbroke Computing are the longest established Atari dealer in the U.K. We have developed an extensive customer service policy which means that we test all Hardware prior to despatch to ensure that goods arrive in working order. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup. This isn't just our opinion, we were voted "Best Dealer 1989" by the readers of ST World magazine, not for "the number of boxes shifted", but for quality service.

All prices are correct at copy date 10/12/91 (while stocks last), and are subject to change without prior notice. Please phone for up to date prices. All prices include VAT & delivery(in mainland UK), there are no hidden extras (WYSIWYG). Next day courier delivery is available for an extra £7 (Mainland U.K). All prices available on Mail Order. Shop prices may differ.

Monitors

Atari SC1435 £249.99
Atari's new medium resolution Stereo, Colour monitor, includes green screen feature, cable, and swivel stand.

Atari SM144 £139.99
High resolution 640 x 400 14" Monochrome monitor.

Philips 8833MkII £229.99
Medium resolution, Stereo, Colour Monitor, includes cable and 12 months on site warranty (Mainland UK)

Philips Cube TV £269.99
Includes: FST, remote control, Scart input (giving near monitor quality display), 60 tuner presets, sleep timer and Fastext. Comes with cable and 12 months on site warranty.

Mice

Squik, High quality replacement mouse, 290 Dpi. **£15**

STE Packs

STE Discovery Xtra Plus Pack

Includes: 9 lives, Escape from the planet of the robot monsters, Final fight, Sim City, ST Tutorial, Neochrome art package & 1st Basic, mouse. **£299**

1Mb STE Discovery Xtra Plus Pack £319

As above with 1Mb (1024K) memory.

2Mb STE Discovery Xtra Plus Pack £359

As above with 2Mb (2048K) memory.

4Mb STE Discovery Xtra Plus Pack £439

As above with 4Mb (4096K) memory.

1040STE Curriculum Pack

Includes 3 packs of Educational software catering for 5yrs to GCSE, 1 Business pack consisting of wordprocessor, spreadsheet and database, and 1 creativity pack consisting of Hyperpaint and Music maker software. **£369**

2Mb STE Curriculum Pack £399

As above with 2Mb (2048K) memory.

4Mb STE Curriculum Pack £479

As above with 4Mb (4096K) memory.

Emulators

PC Speed,(XT) £ 99.99
Please state which version you require, STFM or STE.

AT Speed £ 150
Includes DR DOS

AT SPeed C16 £ 249.99
Includes DR DOS 5, Socket for 80C287 Co-Processor, Norton factor of 8.2

Adaptor board to fit AT speed to STE £ 24.99

Adaptor board to fit AT Speed to Mega £ 24.99

Our service department can fit the above emulators for £20 including return delivery.

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Star LC24/10	£ 189.99
Star LC-200 Colour	£ 199.99
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Cannon BJ10EX	£ 269.99

All Star printers come complete with 12 months on site warranty (Mainland UK) and a free ST/Amiga/PC compatible centronics cable. Printer stands paper and replacement ribbons/cartridges are available from stock.
Please phone for more details.

Spectre GCR

"Power of the Mac, without the price."

- Reads, writes and formats Mac disks.
- Supports Hard drive and second floppy.
- Compatible with STFM, STE, Stacy.
- 30% bigger screen area than Mac Plus.
- Runs 20% faster than Mac Plus.

Spectre GCR V3 £409.99 including 128K ROM's

We are the consistently longest serving supplier

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Roctec ST 3.5" drive. £59.99
ST Internal drive upgrade. £53.49

Due to space restrictions we can only list a small amount of products normally carried in stock. Phone for further details on Monitor stands, Dustcovers, High density disks, Mouse mats from £2.99, A wide range of cables, Josty switch boxes £19.99, Forget Me clock II £19.99, Printer paper, Printer ribbons, Laser toner/Ink jet cartridges, A wide range of joysticks from £6.99, Books, Magazine back issues, and much more.

Phone for quotes on Atari TT's, Desktop Publishing Packs, IBM PC Compatibles.

Atari Lynx 2

Lynx 2 (Console only)	£79.99	Lynx 2 Power supply	£12.99
Lynx soft cases	£11.99	Ninja Gaidon	£24.99

Many more games in stock, Please phone for details.

CDTV £499.99
Many titles in stock Please phone

Megadrive £124.99
Includes Altered Beast, Keypad controller. Other titles available

All prices include VAT and delivery in Mainland U.K. We can arrange next day courier delivery on orders for stock items received before 3.30pm for just an extra £7 (Mainland U.K only).

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All powered up

Right, you've got an ST. It's a powerful and capable machine – but it doesn't stop there. A quick look at the back of your ST gives you a glimpse of the possibilities. All sorts of goodies can be plugged in to transform it into a real power machine – extra disk drives, wacking great super-fast hard drives, printers, modems, monitors. You're spoilt for choice. What you need is a simple guide to tell what they do, what to look for and which are the best. Now, where do you think you're going to find one of those? Step this way...

JOYSTICKS

You can't get very far playing games without something to play them with, can you? Most games are joystick-controlled and there are all sorts of weird styles and shapes available. Good quality micro-switches add to the life of a joystick, so listen for a clicking sound when you move the stick around. Auto-fire comes in handy – this automatically rapidly presses the <Fire> button for you. It's down to personal preference which style of joystick suits you best.

Sting-Ray
£14.95 Spectravideo ☎ 081 900 0024
Unusual hand-held design with micro-switches.
***STF* Rating – 81%**

Quickshot 3 Turbo
£14.95 Spectravideo ☎ 081 900 0024
Micro-switches and auto-fire.
***STF* Rating – 77%**

Cheetah 125+
£6.99 Premier Mail Order ☎ 0268 590766
Durable and cheap. Has suckers to stick it to the table, which you'll either love or hate.
***STF* Rating – 76%**

MICE

One of the beauties of the ST is the mouse-driven interface. Once you get used to a mouse, going back to typing everything in is a real bore. You should look out for the level of mouse resolution, which is measured in dots per inches (dpi) – the higher the dpi, the more responsive the mouse. The standard Atari mouse is rather sluggish – 100dpi – and not very ergonomic, either. An upgrade can make life a little bit easier and a little bit faster – and you're not going to need an acre of desk space for your rodent.

Naksha Mouse
£28.99 Future Publishing ☎ 0458 74011
Top quality 280dpi resolution mouse.
***STF* Rating – 88%**

Power Mouse
£15 Power Computing ☎ 0234 843388
Good, cheap and rather attractive. Ergonomic too. What more do you need?
***STF* Rating – 79%**

FLOPPY DRIVES

Before your ST can do anything, it needs data. So, enter the floppy disk drive. The original disks were 8 inches round and, er, floppy. By the time Atari came to work on their new baby, a new 3.5 inch standard was emerging. Data is recorded rather like it is on a tape machine, except on a circular disk – so you can zoom in anywhere to read data. From the early cumbersome and unreliable machines, disk drives have developed into compact and efficient little beasts.

Since you've already got one of these in the side of your ST, why would you want another? Well, for starters, it makes disk to disk copying a doddle, there's no more endless taking disks in and out of the drive and most serious software benefits greatly from having a drive B – you can keep your program disk in drive A and your data disk in drive B. Many big games take advantage of a second floppy, too. Everything gets a little bit faster and a little bit easier.

If your budget means a hard drive (see page 99) is out of the question, then a second floppy ought to be at the top of your upgrade list. Your ST uses industry standard 3.5 inch double-density disks, each capable of holding 720K of data and programs – that's an amazing 737,280 characters or so. Early 520 STs were fitted with single-sided drives, which have only half the capacity. Thankfully, Atari soon saw the light and they've all been double-sided for the last three years.

Because the basic mechanisms are mass-produced and need little modification to work with an ST,

MEMORY UPGRADES

As soon as you start getting into today's mammoth games or any kind of serious business on your ST – be it graphics, DTP or music – the basic 512K just isn't enough. Many serious programs don't even get off the ground on a 520, so it's time to expand. Memory chips have been getting cheaper and cheaper and, for a little outlay, you can transform your machine. With 1MByte or more you can load up plenty of Desk Accessories and use a nice big RAM-disk, too. Your ST can handle up to 4MBytes – enough for just about anything you can throw at it. You can upgrade to 1MByte, 2MBytes or the full 4MBytes. Some STs come with a different memory management chip which can also handle 2.5MBytes – better check this with the supplier first, though.

On most STEs, upgrading is dead easy. The memory chips are held on little boards called SIMMs which simply slot straight onto the circuit board. For STs and STFMs, the situation is a little different. The extra memory is on its own little board with ribbon cables to attach it to your ST's video shifter chip and memory management chip, which need to be removed. Sounds complicated? It's actually a great deal easier than it sounds and is within most people's reach. However, opening your ST invalidates your guarantee and if things do go horribly wrong – er, things have gone horribly wrong. Many suppliers offer to fit the upgrades themselves, which can save a lot of grief, especially if you're not entirely confident about what you should be doing.

Some kits can be expanded again by buying extra memory chips, so after expansion to 2MBytes you could upgrade later to the full 4MBytes whack. There have been at least half a dozen circuit board designs for the ST – most kits deal with the majority of them, but there's always the chance that you open up your ST only to find the kit is incompatible. Check with the suppliers that they can help you out – either

MONITORS

If your ST has a "television" port on the back, it has a modulator which enables it to talk to any TV. The trade-off for this convenience is picture quality – it's rather fuzzy. A dedicated monitor gives a much crisper, clearer image. Text becomes easily readable and everything looks better. If you're going to be using text-based applications or want to get into some serious graphics, then a monitor definitely eases eye-strain – games look groovier, too. No more arguments when someone else wants to watch telly, either!

Unfortunately, not all colour monitors available can be hooked up to an ST – some need special leads to make the connection or don't work very well even then, so always check with the supplier first. If you have an STE, make the most of it and look out for a monitor with stereo speakers.

The ST also has a beautiful high resolution mode which gives a superb monochrome picture, but it's only available using Atari's own high resolution monitor or a dead swish and expensive multisync job. Heavyweight desktop publishing, computer-aided design and music programs often only run in high resolution. If you're into word processing and serious stuff, then it's worth your trouble to go for a mono monitor – the picture is rock steady and detailed. There are even mono-compatible games available (see *STF*'s roundup last month, or page 142 to order that issue if you missed it) – though you can always hijack the telly for the odd alien-bashing session!

Power! Get into it by upgrading your ST with a nifty add-on... or wiring yourself to the mains. Chris Lloyd, now back on solid food, recommends the former and rounds up the top peripherals available for your ST



THE BEST OF THE REST

ST FORMAT **conducts regular roundups to bring you up-to-date information on the hardware available for your machine. Over the last year we compared 20 printers (issue 25), 15 hard drives (issue 27), all the best floppy drives (issue 28) and much more. If you missed any of these, see page 142 to order back issues.**

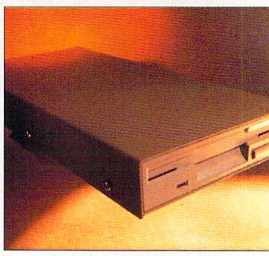
there is a wealth of drives available. All look pretty much the same – a streamlined slim grey box sitting next to your ST. The actual drives are invariably Japanese, the quality varies little and all perform adequately. Points to look out for are a good solid case with a decent power supply and switch. Power can either be internal or via an external transformer. Since the drive only needs a little juice to run, you can draw power from your ST's joystick port – if money is really tight this saves a few quid.



Cumana CSA 354
£69.90 WeServe ☎ 0705 325354
The solidly-built Cumana floppy drive comes with an internal power supply, handy long data cable and a plug already fitted with the correct fuse. It costs a little bit more, but then it's that little bit better.
STF **Rating – 90%**

Pandaal Daatadisk
£59.95 City Beat ☎ 0234 857777
Has a quality Sony mechanisim, internal power supply unit and a nice finish. Good value.
STF **Rating – 85%**

Power PC720E
£45 Power Computing ☎ 0234 843388
Uses your ST's joystick port for power. Has the same good quality Sony mechanism as its big brother the PC720 which has an internal PSU.
STF **Rating – 69%**



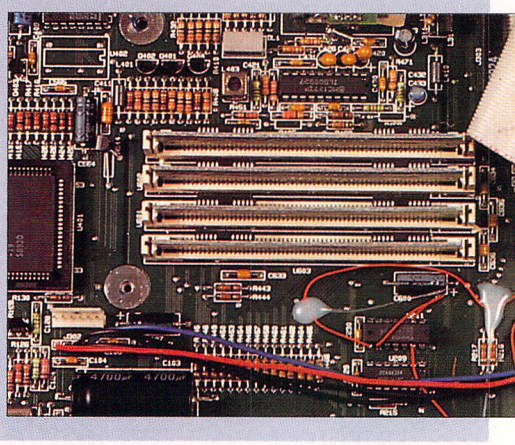
by fitting it themselves or supplying a different kit. And while you're at it, another thing to watch out for is whether the upgrade is "populated" or "unpopulated" – that is, supplied with or without memory chips themselves. Unless you have a source of cheap chips it's better to get the "populated" versions.

Power 2MByte
£99.00 Power Computing ☎ 0234 843388
At a very competitive price, this little board takes your ST to 2MBytes – another 2MBytes can be added later. The instructions are clear and concise.
STF **Rating – 92%**

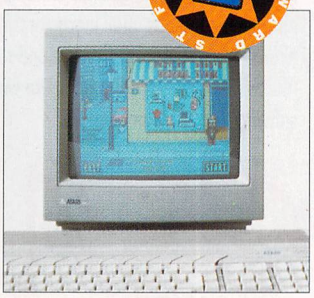
Evesham Micros SIMMs Conversion
£119.95 Evesham Micros ☎ 0386 765500
This kit gives an STFM the ability to use STE SIMMs.
STF **Rating – 86%**

STE SIMMS

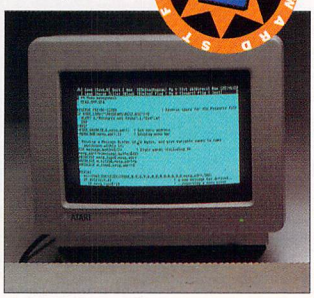
STEs use SIMMs – Single Inline Memory Modules. These are little boards holding either 256k or 1MByte that slot straight into your STE. No soldering, removing chips or anything nasty. Just open it up and slot them into place. There is space in the STE for four, and the system is set up to use them in pairs. This gives you four basic configurations: 0.5MByte, 1MByte, 2MBytes, and 4MBytes. SIMMs are cheap, too. Adding two 256k boards to turn a 520 into a 1040 costs around £30 – an absolute bargain. And two 1MByte boards turning your machine into a 2MByte monster costs around £80. Upgrading an ST's memory has never been so cheap and easy. Available from most electronics suppliers – try Evesham Micros ☎ 0386 765500.



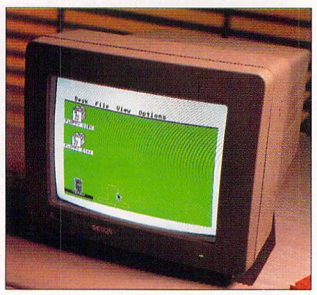
Philips CM8833 Mk 2
£219.00 Swift Micros ☎ 0582 476257
Lovely picture, stereo sound capability (so you can get the most from your STE) and as sexy an appearance as any monitor on the market. The Philips is pretty cheap, too – go for it!
STF **Rating – 90%**



Atari SM124
£109.99 Best Prices ☎ 0903 700714
Specially built by Atari for your ST's high resolution, the SM124 gives you an exquisitely crisp and steady monochrome display. It looks good and is cheap – what more could you ask?
STF **Rating – 90%**

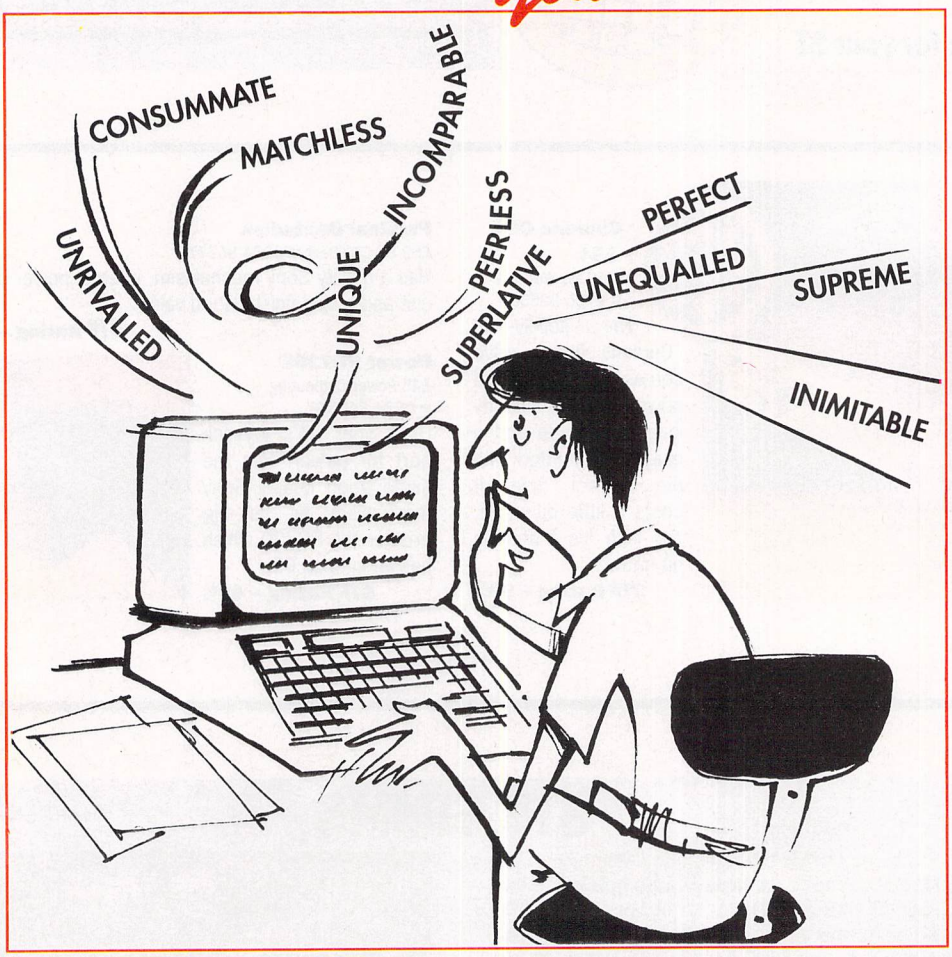


Atari SC1224
£260.00 Atari ☎ 0753 33344
Atari's own colour monitor. Excellent picture quality, but some users might feel that the colours tend to be a bit on the dark side, and it is just a little pricey.
STF **Rating – 84%**



PROTEXT 5.5

"You won't be lost for words" . . .



. . . with Protext 5.5 because the pop-up thesaurus will provide you with inspiration whenever you need it. With words provided by Collins the thesaurus has 43,000 main entries and 827,000 responses!

Protext 5.5 introduces enhanced text formatting options. Automatic hyphenation lets you produce a well-spaced page layout without the bother of manually putting in soft hyphens. Protext determines the correct hyphenation points by algorithms and look-up tables. Elimination of widows and orphans is also provided. You will no longer need to worry about those infuriating single lines at the top or bottom of pages. Protext formats the text to avoid these as you edit the text. Extra blank lines at the top of a page can be suppressed.

New document analysis features provide a wealth of information about your text. You can examine a list of all the words used - alphabetically or by the number of occurrences. Other statistics shown include average word length, average sentence length and a table of the number of lines on each page.

Plus many more improvements . . .

- ☆ Enhanced file selector with different sorting methods, bulk copy and erase.
- ☆ Prodata users - mail merge directly from Prodata files, no need to export.
- ☆ Mail merge: nested repeat loops.
- ☆ New window-based help facilities.
- ☆ Improved line drawing.
- ☆ Spelling checker finds repeated word and missing capital letters.
- ☆ Conversion to and from WordStar 5.5 and Microsoft RTF
- ☆ Full printed documentation of new features.

Of course Protext still includes . . .

Choice of pull-down menu or keyboard operation, extensive printer font support and proportional formatting while editing, up to 36 files open, split screen editing, characters for 30 languages, index and contents, footnotes, newspaper column printing, file sorting, macros, indent tabs, mail merge programming language, exec files and the fastest search and replace around. Altogether the most comprehensive word processing software for your Amiga or ST.

"it's bloody brilliant" — **ST FORMAT**

"one hell of a performer" — **COMPUTER SHOPPER**

"if you need a professional word processor Protext is perfect" — **AMIGA COMPUTING**

"nothing else available comes close" — **ST APPLICATIONS**

PRODATA 1.2

New version of Prodata now with pull-down menus, mouse or keyboard operation, automatic record numbering, merge database, instantaneous filtering, prologue form, edit fields in any order, 2-across label printing. Full details available from Arnor.

Price: £85+VAT, upgrade from v1.1 £30+VAT.

PRICES (including VAT and delivery)

For Commodore Amiga, Atari ST or TT.

Protext 5.5	**£152.75**
Upgrade from 5.0 to 5.5	**£30**
Upgrade from 4.2/4.3 to 5.5	**£60**

Please return your original disks when upgrading

French or German spelling dictionary	**£35.25**

When upgrading please return any extra spell checking dictionaries for a free update to the revised version.

☆ **Both Protext 5.5 and Prodata require 1Mb of memory**

Access VISA

ARNOR

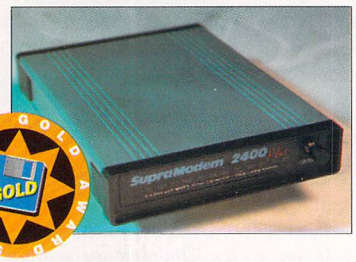
Arnor Ltd (SF), 611 Lincoln Road, Peterborough PE1 3HA. Tel: (0733) 68909 Fax (0733) 67299

→ MODEMS

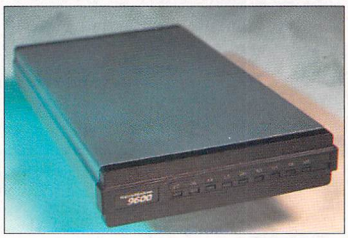
Take a look at the back of your ST and you find a port labelled "modem." Modems (*mo*dulator-*dem*odulators) are clever gadgets which give your ST access to the world using the telephone line. They convert the binary data your ST uses into audible tones which can be squirted down the phone line to another modem, which converts it back into binary data. Bingo! You can exchange data with any modem-equipped machine in the world. You can call up bulletin boards to swap the latest software and information and leave messages for your mates. These are the computer equivalent of a telephone conference service and are often run by enthusiasts, though there are also commercial networks such as CompuServe and Cix. You can check share prices or read the world news almost as it happens – there are even games where other characters can be other real players sitting in front of their STs 1,000 miles away. You have instant access to mounds of information and services – the only limit is the bashing your telephone bill takes.

Modems can shift data at various speeds known in terms of bits per second (bps). The faster it is, the less it costs to run. There are standard speeds and error checking methods used by the various bulletin boards and services, called protocols. The most popular are V22 and V22bis which run at 1200bps and 2400bps respectively. Early modems had a dial on, but now most can auto-dial, saving a lot of hassle. Look out for Hayes compatibility – the industry standard. British Telecom don't like unapproved equipment attached to their phone lines, so watch out for BT approval – modems without it are not necessarily unsuitable or dangerous, just not strictly legal.

Supra 2400 Modem
£129.85 Surface UK Ltd
☎ 081 566 6677
2400bps Hayes compatible and a bit of a bargain, it also has auto-dialling and auto-answer.
***STF* Rating – 90%**



Supra 9600 Plus Modem
£495.00 Supply Solutions
☎ 081 566 3639
The bee's knees: 9600bps, Hayes compatible, auto-dial and bells and whistles. But then you do pay for it all.
***STF* Rating – 84%**



Fax Modem
£299.00 Atari Workshop
☎ 0753 832212
Has the added bonus of being a fax machine as well as a modem. Handles graphics as well as text.
***STF* Rating – 78%**

HARD DRIVES

The add-on which can really transform your system. Once you've lived with one of these, nothing else is as good. Hard drives are essentially very big and very fast disk drives. Instead of a single plastic disk revolving at 300rpm, a hard drive has a number of solid aluminium disks whizzing round at 3,600rpm with the read/write heads just a couple of microns from the disk surface. All this adds up to a drive big enough to store dozens of disks'-worth of data, and fast enough to banish those waiting-for-the-disk-drive blues. Because the heads don't touch the disk, data should be safer, and you're not limited to floppy disk capacity any more, either. Samples and animations, for example, can be multi-MByte affairs.

Hard drives come in a variety of flavours: size varies from 20MBytes to the ridiculously large. For serious applications, 40MBytes are adequate, but the more MBytes the merrier. All hard drives are very fast compared to floppies, but some are quite a bit faster than others. Something below 30 milliseconds access time is getting quick. Caching can speed this up even more – this is the ability to use an area of memory to hold frequently accessed data, so it doesn't have to be read from disk again.

Hard drives attach to your ST via the DMA port, which is also used for Atari's laser printer. If you're going to use one of these, it's vital that the hard drive has a throughport so you can use both at once. Auto-parking is important, too. With the read/write head so close to the disk and the disk racing round so fast, the possibilities of the two meeting can be disastrous. Auto-parking moves the head away to a safe place when not in use.

You'll probably want an auto-booting drive, so you can install all your Desk Accessories and utilities on one drive and have your system set up as you want it each time you switch on. Hard drives also get hot. Some use a fan constantly circulating air about inside the case; others use the case itself as a heat sink, which makes life a lot quieter. All drives come ready formatted and with software to get you started.

The new kid on the block is a removeable hard drive, which uses big removeable cartridges to store your goodies. Run out of disk space? Just buy another cartridge! Data can be moved about easily. You could take sensitive or important data home with you – all you need to do is take away the cartridge. The disadvantage is that, because the disk is not in a sealed unit, it's not as reliable or as fast as the normal hard drive. Unless the portability is important, or you need a cheap way to store enormous amounts of data, it's better to stick to a fixed drive. Either way, if you want to get into some serious power-using then a hard drive is the biscuit.

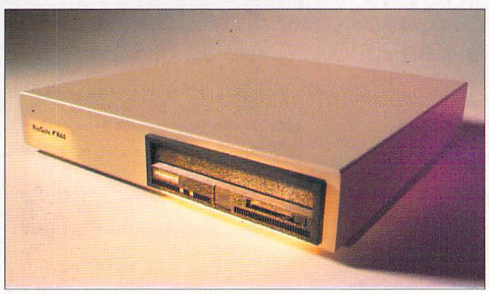
Protar 40DC
£423.00 Protar ☎ 0923 54133
The Protar series of drives are excellently built, offering auto-booting and parking with a wide range of set-up programs. There's a range of capacities – the 40DC is a 40MByte model with a 64K disk cache on board. Beautifully put together and well featured. Top of the tree stuff.
***STF* Rating – 90%**



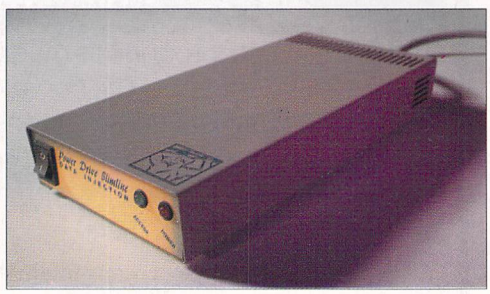
Ladbroke 52MByte
£429.00 Ladbroke Computing ☎ 0772 203166
Offers auto-park and auto-boot, with DMA throughport and cache. The Ladbroke drive is fast, quiet and well put together, with a good tough case. Comes with the excellent ICD hard drive management utilities. Plenty of MBytes for the money. Top contender.
***STF* Rating – 81%**



Protar 44R (removeable)
£611.00 Protar ☎ 0923 54133
Based on the Syquest mechanism, the 44R uses removeable 44MByte cartridges. Slower and less reliable than ordinary drives but each extra 44MByte only costs about a ton. Same excellent build as the other Protar drives.
***STF* Rating – 79%**



Power Computing 40MByte Slimline
£299.00 Power Computing ☎ 0234 843388
One of the cheapest hard drives around, and a solid performer. There's no fan, so no constant whirr. No DMA thoughport either, so using the laser is out of the question, but you do get auto-booting and auto-parking. Best budget buy.
***STF* Rating – 74%**



PRINTERS

Not much point having a word processor or desktop publishing package without one of these. There are printers to suit all budgets, giving various qualities of output from rough and ready to professional. The most common are dot matrix. Cheap, versatile and simple, dot matrix printers use a row of tiny pins to punch at the paper through a ribbon much like an ordinary typewriter. The quality of resolution depends on the number of pins – usually either nine or 24. Since this kind of printer makes an impact on the paper, you can take carbon copies. It also means these are also the noisiest printers – often a tea break in the next room is in order when printing long documents. All offer what is called near-letter-quality (NLQ) – where the print head makes a second pass, slightly offset, to improve the result. There are colour versions that use various coloured ribbons – output is reasonable but far from polished.

Dot matrix printers offer the cheapest way into hard copy and are adequate for most uses, but even using a 24-pin printer on NLQ they still lack the polished appearance of professional output. For that you need an inkjet or laser printer. Inkjet printers have come down substantially in price – they work by spraying little blobs of ink onto the paper from a matrix of tiny jets – usually 64. At 300 dots per inch the result is hard to beat. Spend a lot more and you can get a colour inkjet. There's little software support at present but it's just about the only affordable way to get decent colour output. Inkjets are the the quietest printers, and the slowest. For quality output on a budget, they're the bizz.

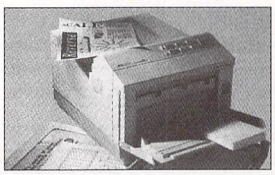
At the top of the heap are laser printers – real professional gear. The image of the page is scanned by a laser onto a drum, which then attracts the toner electrostatically. The paper is rolled over the drum and the toner heated to bond it on. The output is superb. The catch is money – lasers have been getting cheaper, but still cost a small bomb to buy and run. Most have built-in fonts and can handle the basics such as bold, underlined, italic and so on. When you print a straight WP document it's these you get – you pays your money and takes your choice.

Before you can get anything out of a printer, your program needs a printer driver – a bit of code that tells your printer what to do. To get the best output, you need a good driver. It's worth checking for software support before parting with your readies. ***stf***

Hewlett Packard Laserjet 3P
£1,291.00 Hewlett Packard ☎ 0344 369369

The business – gives splendid results. Easy to use, compact, with 22 built-in fonts. Also has a fancy image-enhancing function.

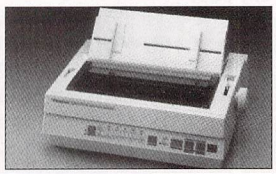
***STF* Rating – 91%**



Panosonic KX-P1123
£311.00 Panasonic UK ☎ 0344 853915

The best buy 24-pin dot matrix printer. Good all rounder – fairly fast and quiet (for a dot matrix), with five built-in fonts.

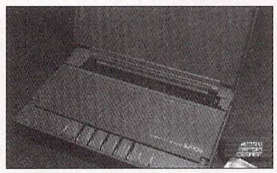
***STF* Rating – 90%**



Cannon Bubblejet BJ 10e
£405.00 Cannon UK ☎ 081 773 3173

The cheapest inkjet and a good performer, too. Fast text output and superb final output. Very small and beautifully quiet as well.

***STF* Rating – 90%**



Atari SLM 605
£1,056.00 Atari UK ☎ 0753 33344

The cheapest laser printer and by far the fastest. Lovely print quality, too. Uses lots of memory though, because it draws the image in your ST's memory, so you need at least 2MBytes.

***STF* Rating – 89%**

Star LC-10
£223.00 Star UK ☎ 0494 471111

A 9-pin dot matrix printer, the LC-10 is getting old now but is still a nice little number. Good paper handling, four built-in fonts and quite a reasonable turn of speed. One of the quietest dot matrix printers. To be replaced by the faster LC-20, but still widely available and often at bargain prices.

***STF* Rating – 88%**

Don't buy a High Resolution Monitor

until you've checked out The Monulator, an incredible new software utility which turns any TV or monitor into a monochrome monitor capable of displaying every single pixel of the ST's superb High Resolution screen.

Run the wealth of ST monochrome software, using your existing TV or monitor, with no loss of display quality!

All ST professionals agree that a high resolution monitor is essential for serious use. The Monulator is a direct replacement for the Atari SM124 monitor in a complete, easy-to-use package. No special hardware is required. Simply plug in your TV, insert the Monulator disk and watch the screen go Hi Res! What's more, with its unique desk accessory control panel, the Monulator sports features that the Atari SM124 can only dream of (for example, a green screen mode!)

Compatible with: Calamus ...Cubase... Proflight... Pagestream... Calligrapher...Signum ...DynaCADD ...Hyperpaint ...WERCS ...Degas Elite ...Steinberg Pro24 ...DevpacST ...QuickST ...BeckerCAD ...MegaPaint ... Notator...Printing Press...Protext...That's write...Write on! The list goes on...

The Monulator is also compatible with the entire Atari ST range, from the 520 STFM to the Mega STE!

ATTENTION USERS OF THE MICK WEST MONO EMULATOR
Does your system run slower than a soporific snail? Are you fed up with having to decide everything at boot-up?
Can your eyes take much more of the fuzzy icons and unreadable text?
MORIARTY SOFTWARE has the answer: THE MONULATOR!

The price? Look through this magazine and you won't find an SM124 monitor for less than £120. A software monitor comes a little cheaper. The complete Monulator package, including documentation, postage and FREE Technical Support, costs just £20 (Overseas add £2).

Available direct from MORIARTY SOFTWARE,
1 CEDAR CLOSE • LANGLEY GREEN • CRAWLEY
WEST SUSSEX • RH11 7SB •

Credit card orders to Goodmans International on (0782) 335650.

For an information pack please send a decent-sized SAE.

Moriarty

THE Monulator

ST Format rated 87%
Latest release now Version 1.8

POWER COMPUTING

NEW LOW PRICES

New Series 900 Hard Disk



- Super-slim metal case
- Low profile mechanism
- No need for a cooling fan
- Buffered Thru'port
- Optional battery backed up clock
- High speed 20mS seek rate
- Write protect switch, protect your valuable data
- Power supply
- ICD Interface & Utility disk

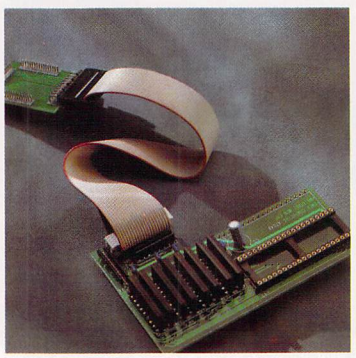
40MB	£329	100MB	£479
40MB with clock	£339	100MB with clock	£489

With any Power Hard Disk
Lattice C Version 5, **£55 (normally £89)**

NEW! 512K RAM Expansion

for all STFM Machines **£45**

ST RAM Expansion



- No soldering required
- Expand to 2MB or 4MB
- Plugs directly inside the ST
- Full fitting instructions
- Uses latest high capacity RAM chips

2MB RAM Expansion	£99
4MB RAM Expansion	£169
1MB Simms for STe Expansion	£40

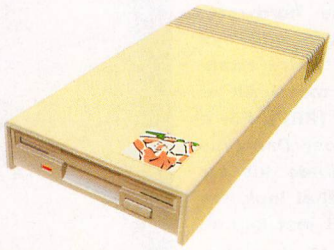
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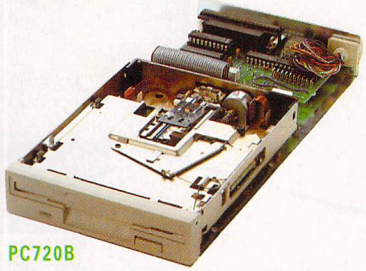
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In last month's special issue of *ST FORMAT*, we gave away a unique version of Gadgits' *Sequencer One*. It has all the useful MIDI features of the original *Sequencer One* plus a special sound-chip editor, so it can be used with any ST – even if you don't have any MIDI gear connected. STE owners can hear their musical creations in stereo, thanks to support for the STE's enhanced music capabilities. The issue included a free "Get You Started" supplement to help you get going. If you missed all this, turn to page 142 to order your copy of the issue.

To make sure you get the most out of *Sequencer One* we're offering special deals on other associated packages. For even more features, you can invest in Gadgits' latest upgrade – *Sequencer One Plus*. Then there's the Sample Series, which gives you a set of samples you can load into *Sequencer One* (or *Sequencer One Plus*). The Hit Kit enables you to start writing your own professional drum tracks and bass lines.

Don't miss these special offers – start making the most of *Sequencer One* now!

Even more great ST offers

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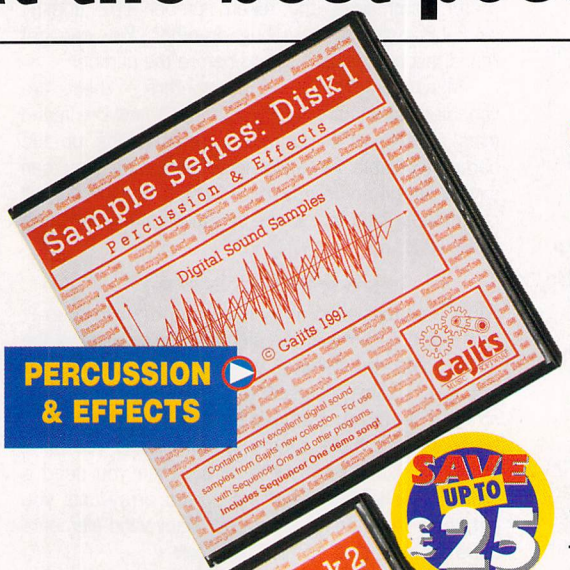
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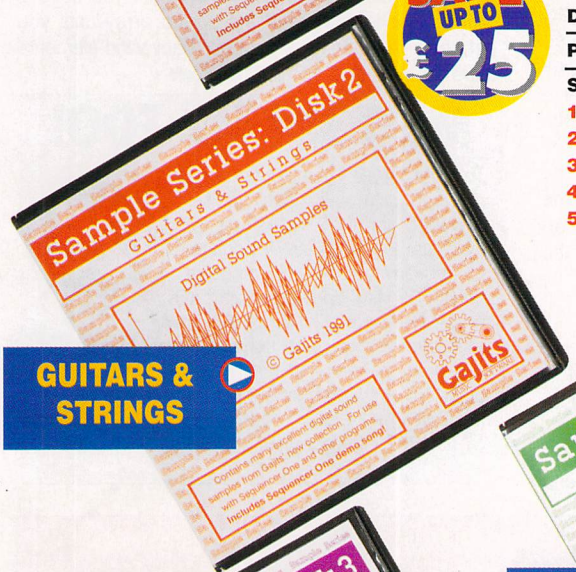
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STOS surgery

Come in, lie down, relax and tell me all about it. You can talk to me, I'm a Doctor. Chris Lloyd peers into the *STOS* medicine cabinet

Programming was once the domain of seriously serious types. Everything was horrible impenetrable assembly code. Then came *BASIC* – Beginner's All Symbolic Instruction Code. It was designed to be useable by normal people – or at least, those who don't think in hex. There are at least half a dozen different varieties of *BASIC* for your ST. *STOS* is designed to make the production of games and other graphic-based programs a breeze. It handles the really difficult bits for you with a range of powerful commands. Not suprisingly it has sold loads of copies – 126,341. Well, thereabouts, anyway. Like all programming though, it isn't all a bowl of cherries – although the manual is one of the better ones, there's still a lot to learn. *STOS* Surgery brings you a heap of tips every month just for the *STOS*-heads out there.

DISAPPEARING MENUS

The manual tells you how to create menus using the `menu$` command. What they don't tell you is that you can get rid of the options again by using a null string. You can empty the options or a whole menu. `menu$(2)=""` would wipe the whole of the second menu, `menu$(2,3)=""` would get rid of the second menu's third option and all subsequent ones.

Having a bit of bother using a menu with a background on screen? The trick is to use `screencopy` to copy the background picture to the screen, starting eight pixels from the top so it doesn't interfere with the menu. Now, why didn't I think of that?

HOW BIG IS THE SCREEN?

STOS, wonderful as it is, has a few, er, inconsistencies. It's never quite clear which coordinates to use when defining the whole screen. When using the `reduce` command to compress a screen to half its vertical size, the horizontal size needs to be 319. If you capture the screen as a string and want to paste it down again, the horizontal size needs to be 320. Don't ask why.

SPRITES

Although a sprite bank has its palette saved with it, there's no direct command to retrieve it. It is possible with a bit of mucking about though. Try these lines – the ↵ symbol means no line return yet.

```
10 X=hunt (start(1) to ↵
   (start(1)+length(1),"PALT")+4
20 for A=0 to 15:colour A,deek(X) ↵
   : X=X+2 : next A
```

Been getting miffed because you've been using the `put sprite` command and the sprites don't appear? It's probably because the screen hasn't been updated yet. The sprite is positioned using the `sprite` command, then pasted onto the screen with `put sprite`. If the screen hasn't been updated then nothing appears. Use an `update` command first.

If you want to get rid of sprites you can use the `off` command, but unfortunately this zaps all the sprites. To get rid of one you could move it to a coordinate off the screen – not bad, but rather crude. the fastest is to use one of the traps. Try –

```
dreg(0)=0:dreg(1)=n:dreg(2)=0:trap 5
```

substituting your sprite number for n.

PROGRAMMING EXTENSIONS

One of the advantages of *STOS* is the way you can add new commands, with a bit of assembly programming and some blood and sweat. Here's a couple of little tipettes. Rather than saving all the command names when saving a *BASIC* program, *STOS* uses a token to represent each command. When you're putting together the token list with your new interpreter commands, the token number 162 doesn't work because of some bug or other. You can get round this by adding a space before the number.

Many commands use parameters – these are variables used in their execution. Each new command uses a table of parameters. When setting up the parameter table for a compiler extension, you can save yourself some space and effort by directing all commands with the same parameters to the same table. Neat, eh?

SORTING SORT

When a dimensioned array is sorted, the whole array gets sorted – not just the element you've used. If the array contains numbers, then any unused elements are zeros. These then come first when you sort the array. If the array contains strings, then unassigned elements hold blank lines – null strings. If you don't know the exact size of the array, then you need a routine to check through the sorted array until you get some data, or work out how many valid elements there are and jump to this point. ***stf***

ME TOO! ME TOO!

PRIZE £25 WINNER

To order *STOS* – complete with compiler, *Maestro* sound package and over 600 sprites – at a saving of £42, turn to page 126. Or perhaps you already use *STOS*? Got some hot *STOS* tips to share with the world? Need a perplexing programming predicament sorted out? Let us know about it! In that way, you can share your tip with well over 70,000 other ST enthusiasts and be in the running for our monthly prize of £25. Write in to the *STOS* Surgery, *ST FORMAT*, 30 Monmouth Street, Bath BA1 2BW.

WIBBLY WOBBLE

Remember all that nasty trigonometry maths stuff that seemed to have no use at all? Well, with a little work you can get sexy effects using sine waves. This little listing takes a section from the top right of a picture stored in bank 6 and gives it a ripply wibbly effect much beloved by demo writers everywhere.

Line 10 sets up a blank screen in low resolution. Line 20 reserves a dimensioned array and grabs the palette from memory bank 6. A dimensioned array is a variable with lots of separate elements – in this case, 720: two complete revolutions using degrees. Lines 30 and 40 do some horrible maths stuff converting the degrees into radians, then calculating the sine of the angle. This gives you a series of numbers that cycle between 1 and –1 in a lovely sine-type way. Because we're going to use this number as the pixel offset, it's mutliplied by 20.

Each frame of the sequence is drawn line by line. We don't want to see this on-screen so the background screen is defined as the logical screen and all the drawing takes place here.

Lines 50 to 70 draw each frame. The Z variable is used to step through our array. Changing the step value gives sharper or shallower waves. Line 60 looks daunting but isn't, honest. It copies lines from the picture in back 6 to the logical screen and each line is offset using your array. The width of the picture has to be a multiple of 16 – here the wobbled picture is 96 by 71. The larger you make it, the slower everything runs. This little number really shows off the power of *STOS* – try writing anything this short and powerful in another language!

```
10 key off : flash off : curs off : mode ↵
   0: cls : hide on
20 dim ARRAY(720) : get palette (6)
30 for X=1 to 720 step 1 : ANG#=rad(X)35 ↵
   ARRAY(X)=(sin(ANG#)*20) : next X
40 logic=back
50 for Z=1 to 360 step 8 : for Y=0 to 71
60 screencopy 6,20+ARRAY(4*Y+Z),Y,116+↵
   ARRAY(4*Y+Z),Y+1 to logic,0,Y
70 next Y
80 screen copy logic,0,0,96,71 ↵
   to physic,115,60
90 next Z : goto 50
```



● The lady herself going through a wobbily patch. Compiling the program speeds everything up enormously. For each frame, your ST needs to do 497 bits of maths as well as copy 71 separate lines of picture. Try fiddling about with the numbers – if you change the value that Y is multiplied by the sine-waviness is altered.

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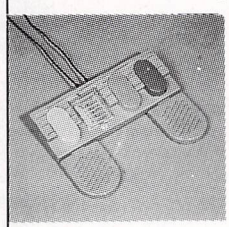
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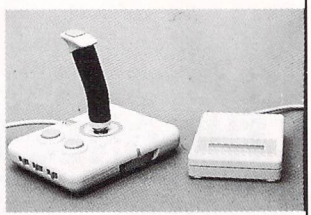
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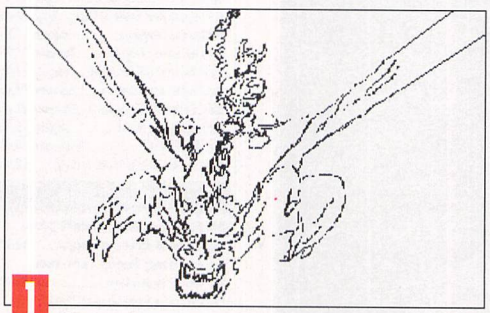
THE KANDY COLOURED TANGERINE FLAKE STREAMLINE PICTURE SHOW

RED HOT AND BLUE

PRIZE £25 WINNER

This rather friendly-looking example of the classic big bad dragon picture is the work of **Bill Croan** from **Gateshead** who sent us an extremely comprehensive breakdown of all the little tricks of the trade. This sterling effort wins our my-gosh-it's-big monthly prize for being such a swot.

● *Neochrome* is £5.95 from Goodman Enterprises ☎ 0782 335650



1 **"After selecting my source material, I scanned a tracing of it in two halves using a hand scanner at 200dpi . I used *Neochrome* to copy each screen in the paste buffer and re-sized it to half screen, then re-pasted the two onto one screen. Then I had the important task of choosing the palette. The original picture of the dragon was blue against a sea of fire, which I wanted to keep as true to as possible. I used *Cyber Paint's* Range function to select blues for the dragon and flesh tones for the rider. After black and white, I have 14 colours to play with – remember where the light is coming from and get an idea which shades you're going to need.**

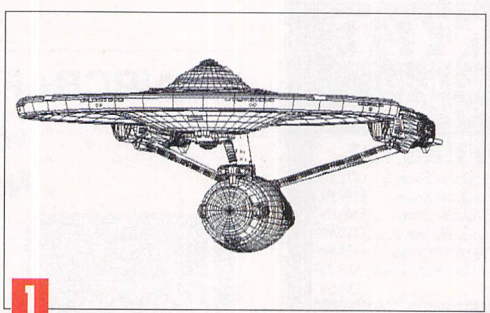


2 ***Neochrome* is the perfect tool to enable detailed work to be carried out in the Magnification window, at the same time as displaying the actual size on the main screen. As with painting, always step back from your picture after bouts of concentration on a particular section. Working in Magnification for fine detail is great, but it sometimes you gives a false impression of the finished object. ST art is learning to compromise. The original picture of the skeletal rider was "beady eyed." However, that looked wrong so I made him "shallow eyed" instead. Here we see the two versions in detail and at actual size.**

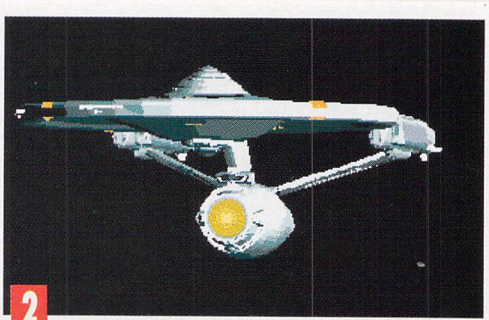
TO BOLDLY GO

Garry O'Hare from **Solihull** has taken a slightly different approach and used a 3D model as the basis of his picture of a vaguely familiar spaceship – much beloved by artists and animators everywhere. Fascinating, as somebody once said. (Actually, what he really said was, "Why have you gone and added those rococo frills to the original design? They'll go out of date as quickly as the fins on those huge 1950s American cars! It's just not logical..." Then they told him all the extra bits were going to be *Vulcanised*, and for some reason he changed his tune. Compromise? I can't believe my ears. For that matter, I can't believe his ears either...)

● *Cyber Studio* is £51.00 from Electric Distribution ☎ 0480 496666



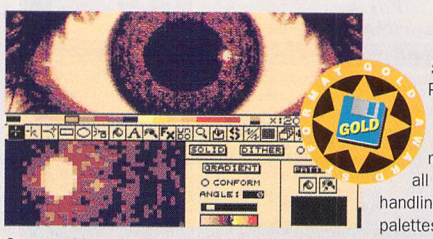
1 **"The first stage is a 3D model using *Cyber Studio*. I always do my setting up in mono because it is so much easier to see which way round the object is. This is a hidden line wire frame superview, which I use as a final check to make sure I am happy with the view angle and scale of the 3D object.**



2 **Having made a note of the settings in mono mode, I switch to colour for the final superview. At this point, I set the colour palette I want to use and where I want the light to come from. As you can see, the final view as it comes from *Cyber Studio* is still very rough, so this is where the real work of drawing the picture starts.**

THE ONES THAT YOU WANT

There are dozens of art programs around for the ST. Each has a slightly different approach and none of them excels in all areas. Basically, you use the mouse to lay down colour on your screen using a range of tools. All of them feature a basic set of drawing tools – brushes which work like er, brushes, spray cans which throw little dots about, fills which "flood" areas of screen with a colour or a pattern and block functions, where you "cut" a section of the picture out and perform all sorts of magic on it before "pasting" it down again. Implementation varies and each program has its own particular quirks and strengths. So, take your mouse in hand, boot-up your art proggie and get artistic. You know it makes sense.



DELUXE PAINT

£59.99 Electronic Arts ☎ 0753 549442

Probably the best ST art package – *DPaint* boasts a host of fancy features. Loads and saves in NEO, *Degas* and its own IFF formats. Block manipulation is excellent, with all sorts of wacky distortions possible. Palette handling is groovy, too – ideal for remapping palettes. It supports the extra colours on an STE. Comes with resizable fonts and you can design your own. *DPaint* also has a complete animation studio with tweening – that's the process of telling your ST to create intermediate frames between shapes and positions of shapes. It only works on blocks, but is powerful and easy to use. *DPaint* only works in low resolution and can be fussy, but contains about all the functions of the other packages with a few extra of its own. If you're serious about graphics, this one is at the top of the list.

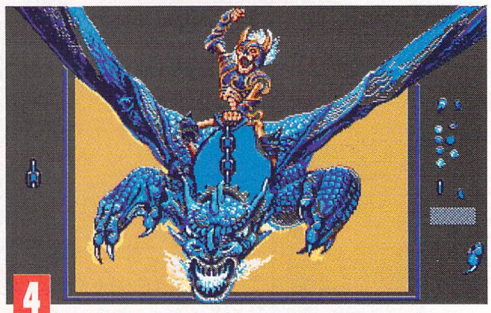
***STF* Rating – 92%**

Mix in an ST and an art program, add a dash of time and a pinch of imagination. Leave to simmer for a while, remove from heat and strain the contents into a disk. Chris Lloyd checks out this month's menu

Is there an artist lurking inside you just bursting to get out? Do you feel like coming over all colourfully creative on your ST? Share your hard work, tips and techniques with the rest of the world through *ST FORMAT's* Gallery pages. In no time you'll have thousands of screaming fans not recognising you in the street. Send your work, saved out at various points right through to the end, along with a detailed explanation of each stage and any tricks or exciting gimmicks you used to complete your creation to us at – Gallery, *ST FORMAT*, 30 Monmouth Street, Bath, Avon BA1 2BW.

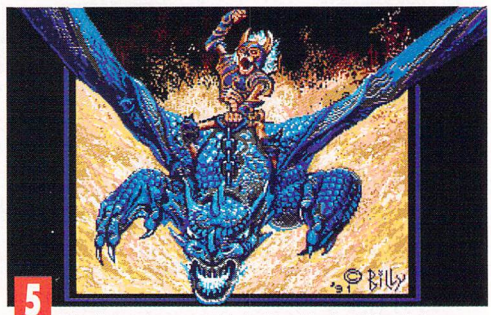


3 **Before painting the dragon, I filled in the background with the flames' base colour; this enabled me to "anti-alias" it – that is, to remove all the jagged lines. As I draw, I keep the useful bits, like the scales and claws, by the side of my screen. Using the Jack Knife tool I can cut these out and paste them on as needed. This way you have an unlimited number of custom brushes.**

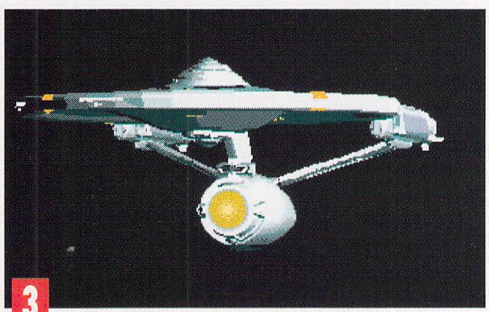


4 **As I drew more of the dragon, I decided that the mouth wasn't open far enough, so using the Copy Box tool, I surrounded the full picture and dragged it to the top of the screen to enable me to expand the size of the lower jaw. Then, I surrounded the bottom jaw just under the top teeth and dragged the jaw to its new size.**

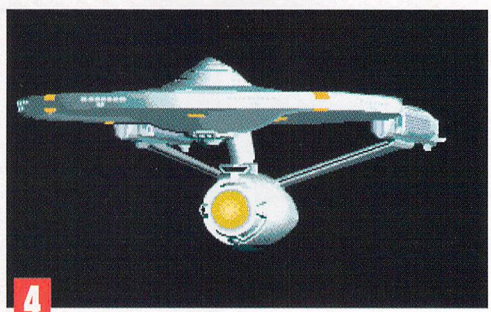
It would have been easy to just mirror the wings, but remember – the direction of the light adds to a picture. It is just as quick to fill the wings' outline with the base colour and repaint using a freehand brush with two shades of blue.



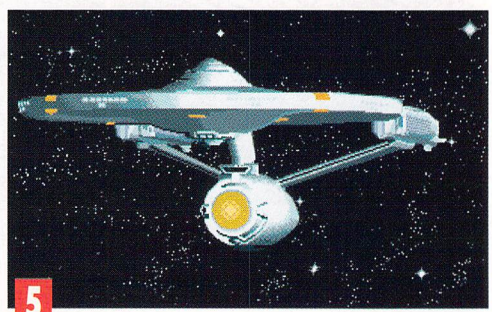
5 **The flames are added directly to this picture using the Nozzle tool – loaded with two colours as the brush – and the freehand brush. I had to do some last minute alterations to finish it off properly – the flames background hid the detail of the skeleton's shoulder and therefore had to be altered, and I made the background black as I'd initially intended. Finally, I was able to add the all important signature, and sit back and admire my efforts!"**



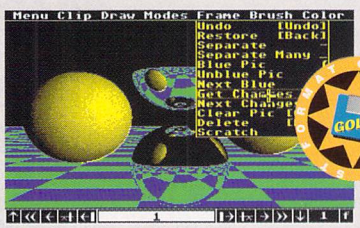
3 **The basic idea is to blend the roughly shaded areas into each other to smooth them out, straightening out things like the engine supports. I use *Degas Elite* to do this. I think it still has the best zoom of any paint program – ideal for this sort of work. It is much better to do this by hand because the anti-alias function of paint programs just tends to end up blurring the picture.**



4 **Still using *Degas,* I pick out the windows on the primary hull and also lighten up its underside to make it stand out more. At this stage, I find it's best to leave the picture alone for a couple of days, because when I come back to the picture, areas that need touching up – or even changing – really stand out. I always keep a copy of the picture at this stage without the background. This enables me to use the same picture with different backgrounds very easily.**



5 **For this version I chose a simple starfield background. To do this, I used *Cyber Paint 2,* because the starfield picture I used was one I had done some time before and used a different palette to the Enterprise picture. *Cyber Paint 2* enables you to have a different palette for each picture in a sequence. So, I loaded up both pictures, clipped the starfield into the clip buffer and used the Fit Colour command to match the colours to those used by the Enterprise picture. Then it just remained to paste the starfield below the Enterprise picture."**



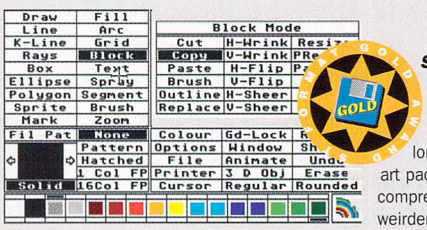
CYBER PAINT 2

£51.00 Electronic Distribution

☎ 0480 496666

The only real rival to *Deluxe Paint*. Has all the usual drawing functions as well as some dead sexy animation and distortion effects. Loads and saves NEO and *Degas* as well as delta-compressed animations – that is, sequences where only the differences between frames are saved which makes it possible to save a lot longer sequences. *Cyber Paint* is part of a suite of *Cyber* programs, including 3D modelling and texture mapping programs.

***STF* Rating – 92%**



CANVAS

***STF* 30's Cover Disk** – if you don't have your copy, go on down to page 142 for details of our back issue service.

This has got to be the best value by a long chalk. A complete *FORMAT* Gold winning art package was yours with *STF* 30. *Canvas* has a comprehensive range of goodies including some weirder ones, such as a 3D modelling studio. It can produce 4096-colour pictures on an STE and 512-colour pictures on an older ST. It saves and loads in NEO, *Degas* and its own format. You can even save and load fill patterns, palettes, and sprites. It lacks a decent animation suite and some of the swisher functions of the heavyweights. Even at full price, *Canvas* was a bargain. Start here.

***STF* Rating – 90%**

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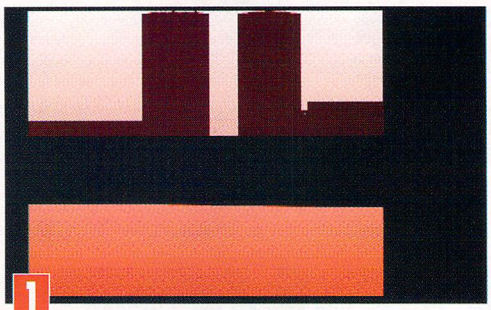
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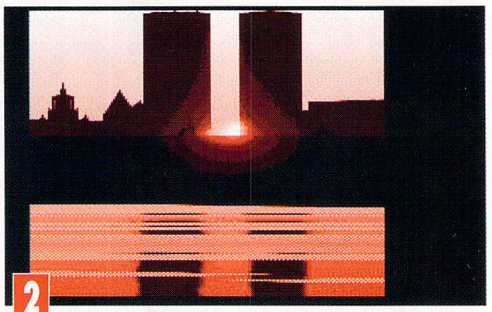
TWIN PEAKS

Aren't they tall and moody? **Nick Drummond** from **London** brings us this broody view of the World Trade Centre. That perennial favourite *Degas Elite* was used along with *Neochrome Master* to access the extended STE palette. He reckons it took about three hours, mostly in Magnify mode.

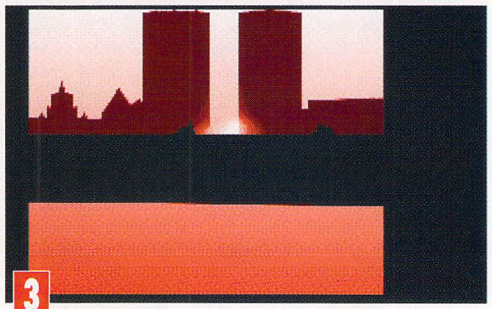
- *Degas Elite* is £25.99 from Electronic Arts ☎ 0753 49442.
- *RezRender* was on *STF*'s Cover Disk 23 – turn to page 142 to see how to order your copy.
- *Neochrome Master* is no longer available.



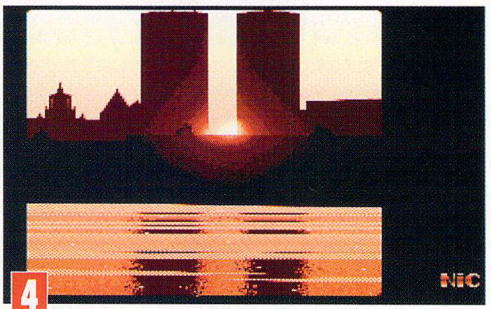
1 **"The shaded background was done with the Gradient feature on *RezRender* using an invisible object. A palette from white, through red, to black was chosen, and the screen framed. The Box tool was used to produce the simple buildings. The background is slightly lighter than the foreground.**



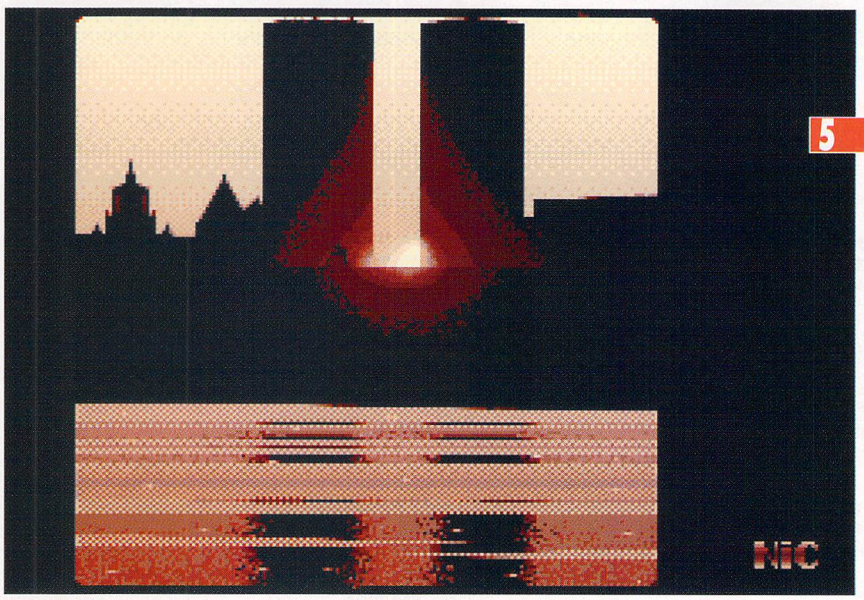
2 **Light was built up on the buildings using Change to protect the sky and the original shading. Change was set to the colour of the building. This was repeated for the foreground, making sure the colour bands lined up. A shade of one step darker was used for each band to keep the foreground separate. Alternate dots were used on the water to give it a proper surface. This was done with the Line tool using a dotted line. The reflections of the buildings were added, and smoothed into the water by building up colours again.**



3 **More detail was added to the background with some further buildings, sloping of roofs and other surfaces. Two more foreground structures were added. The sun was added between the buildings with white. Colours were built up around it to make it glow and blend it into the sky, as well as anti-alias it.**



4 **The buildings were smoothed and anti-aliased and more detail was added to the foreground. Smear was used on the water to make it slightly less flat. The palette was altered to a warmer yellowish-orange tone. The light on the buildings was smoothed out in order to blend the colour bands into each other. Points of light were added to the water.**



5 **This is where *Neochrome Master* was used to change to an STE colour palette which gives a much better effect. Finally, the whole picture was touched up and the border was changed to black, and that's it!"**

FOR FREE! ER, WELL, NEARLY

Getting into the graphics scene needn't take much of a slice out of your wedge. There are some competent art programs out there in the Public Domain. Technically these are free, although you pay a small charge for duplication and administration. Check out the PD directory of Public Domain libraries on page 48. Let's take a look at the better colour ones.

EZ ART: *EZ Art* can work on an A4 or A5 screen and has a reasonable range of tools – various brushes, fills and so on. Nothing fancy, but all dead easy to use and dependable. One of the best around in PD.

***STF* Rating – 82%**

PALETTE MASTER: This one boasts the ability to use more than 16 colours at once – up to 50-colour pictures are no problem. Nice range of tools, too. Loads NEO and *Degas*, as well as its own ART format. Pictures can be saved as stand-alone programs and, with a bit of fiddling, incorporated into your own programs.

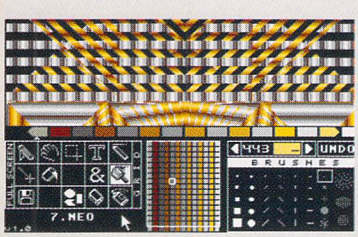
***STF* Rating – 80%**

ART: Similar feel to *Degas Elite*. Works in all resolutions and is a solid art program. Includes a few fancy bits like user-definable fills.

***STF* Rating – 75%**

MEGAPAINT: Enables you to work on a screen of up to 2,560 by 1,920, although you need lots of RAM for this. Works in all resolutions, but only has a basic range of tools.

***STF* Rating – 72%**



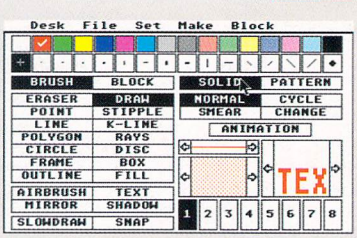
NEOCHROME

£5.95 Goodman Enterprises

☎ 0782 335650

Atari's original art program and bundled with most STs since. It was in the Public Domain for years until Atari recently withdrew it. Goodman's have now got the distribution rights. By today's standards, *Neochrome* is pretty basic – although still workable – with a nice range of cut and paste functions. The tools are selected from a range of icons on the bottom half of the screen, which also holds an excellent zoom window. It only uses its own NEO format pictures, and you're limited to one screen and low resolution. A good read of the manual also reveals some limited animation functions. It is dependable, easy to use and friendly. Not bad, but getting old and looking it. Still not bad value at this price.

***STF* Rating – 84%**



DEGAS ELITE

£25.99 Electronic Arts

☎ 0753 549442

One of the first commercial art packages and still widely used. *Degas* introduced the *Degas* format pictures – a sort of unofficial standard picture format. Works in all resolutions and can use GDOS fonts, so you have hundreds of different styles of text available. All the tools are selected from a full screen menu, then you switch back to the picture which can be a little laborious. All the basics are here, but nothing very fancy although it's all easy to get to grips with. A good art package, but, frankly, past it. *Canvas* offers much more for much less.

***STF* Rating – 82%**

Working under cover



Just what goes on in the twilight world under the keyboard? What does it take to make that old ST magic? Neil Jackson attempts some exploratory surgery without the aid of an anaesthetic – or a guarantee

The things we do for love. Just for you, we took a brand new STE, the very latest you'll find anywhere, and ripped it open. We don't care about invalidating warranties – but you probably do, especially if you only got your machine this Christmas, so let *STF* do the dangerous work for you!

Inside an STE, you find oodles of chips, resistors and assorted components. But what do they all do? And how can you tell which chip is which? This feature takes a look at the heart of your ST and outlines the main systems which together form the powerful machine you'll be using every day.

Bet you never knew there was so much in it, eh?

1 Tone and Volume Controller
This chip controls the volume of sounds played through the stereo output. It can also filter sounds to change their tone, like the bass and treble control on a hi-fi. You can control this chip through software.

2 Audio Amplifiers
This group of components boosts the level of signals from the Digital to Analog Converters and then feeds them through the Tone and Volume Controller.

3 Digital to Analog Converters
These two chips turn digital sound data into analog audio signals. There are two – one for each stereo channel. The audio signals are then amplified and filtered before output, using the circuits above.

4 GST Shifter
This is a new, custom-built Atari chip, found only in new STEs. It takes data from an area of RAM known as the screen memory. It converts the data from eight-bit bytes into one long stream of pulses for each of the three main colours – red, green and blue. These pulses are sent to the video amplifiers for further conversion.

5 Video Clock
Because the GST Shifter is not directly controlled by the main processor, it has its own timing clock. This clock controls the speed of the data coming out of the GST Shifter and synchronises the PAL Encoder so that the picture is properly displayed.

6 Input and Output Buffers
These chips protect the main circuits from being damaged by a duff joystick or a shorted-out RAM cartridge. They're just like miniature relay stations which pass data through from one side to another. If something goes wrong with a peripheral device they may blow, but they save the expensive chips from damage.

7 Paddle Decoders
The STE has special sockets for analog paddle controllers, though there are few devices around which use them. This circuit decodes the paddle signals and turns them into digital data for processing or storage.

8 Video Amplifier
This group of components turns the digital output from the GST Shifter into analog video signals. These signals are then processed again, to make them displayable on a monitor and a TV.

9 Power Supply Input & Smoothing
The main power connections plug into the circuit board here, providing 5, 12 and –12 volts for distribution to all circuits. The 5-volt line, the most-used, has a large capacitor attached to it. This smoothes out the rather jittery signal which the power supply provides.

10 GST MCU
The GST MCU is another new STE custom chip, replacing three chips on the old ST. It handles all the control signals which the processor uses to turn other chips on, and selects the appropriate RAM chips when data is being stored or retrieved from memory. It also contains the Blitter (Bit-Block Transfer Processor), which you can use to move large blocks of data very quickly.

11 UHF Modulator
The UHF Modulator takes the analog video signals and mixes them with an Ultra High Frequency (UHF) carrier signal. The resulting signal can be fed into a household TV and displayed.

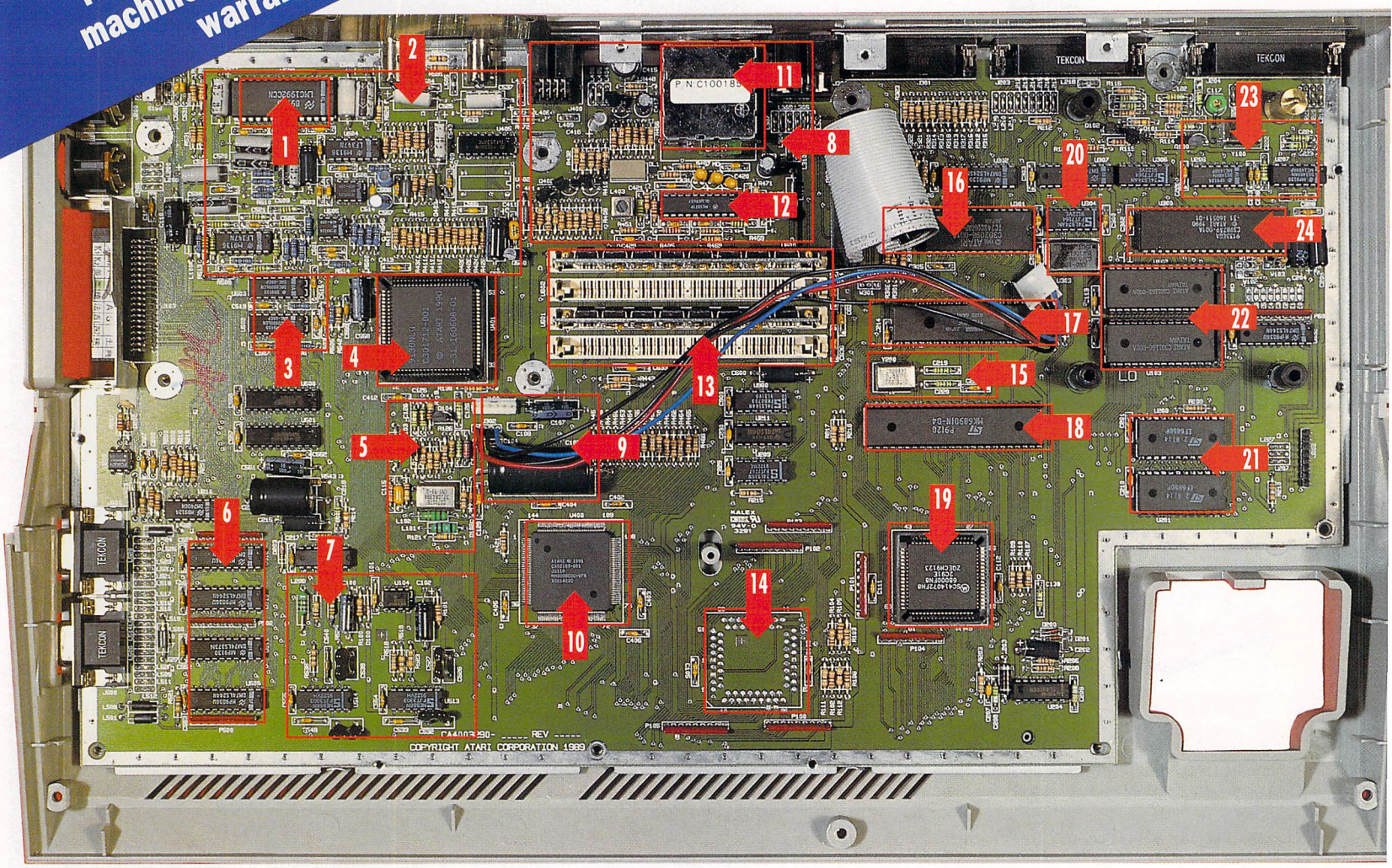
12 PAL Encoder
This arranges the video signals so that they conform to the appropriate TV picture standards governing the length and number of display lines. In the UK, this standard is Phase Alternating Line (PAL) – in the USA a different chip is used to conform to American NTSC standards.

13 RAM – SIMMs
The main memory lives here, in the RAM banks. On the STE, special pre-packaged memory cards called Single In-line Memory Modules (SIMMs) can be plugged in here to increase the memory available. There are four slots, which means you can upgrade to a maximum of 4MBytes using 1MByte SIMMs. Older STs use individual memory chips which need to be plugged or soldered directly onto the circuit board. They're not so easy to upgrade, but it's still possible.

14 Old Blitter space
Despite the appearance of the new GST MCU chip, the STE circuit board still has a space left for the old Blitter chip. It's not much use now, and it'll probably disappear when Atari redesign the layout.

15 MFP Timer Clock
The Multi-Function Peripheral uses this circuit to provide a basic timing signal from which all other its timers are derived.

DON'T TRY THIS AT HOME! Taking the lid off your machine invalidates the warranty!



16 Floppy Disk Controller
This is another brand new custom chip, found only in new STEs. It's known as the AJAX chip, and it's Atari's most recent enhancement. It controls the entire floppy disk system, and is responsible for moving the disk drive heads into position and reading or writing data. The AJAX was originally developed for the TT but is being used on the STE because it works so well. When combined with a different disk drive, it can read from and write to new 1.44MByte floppy disks.

17 Sound Chip
The sound chip in the ST and STE is the same – a Yamaha YM2149 Programmable Sound Generator. It can produce three channels of sound at once, and these are mixed together and sent to your TV or monitor through the monitor socket and UHF Modulator. You can control the sound chip directly in your own programs.

18 Multi-Function Peripheral
This chip provides several timers which the processor uses to keep track of things like the number of frames dislayed. You can also use it for producing time signals for your own programs.

19 Central Processing Unit
The brain of the system: the Motorola 68000 processor. This is the device which actually runs your programs. All other chips on the board are subservient to it and run under its control. All the calculations involved in any process are done by this all-powerful chip before being passed on to the appropriate sub-system. The 68000 usually spends most of its time running the main operating system program, which is stored in the ROMs.

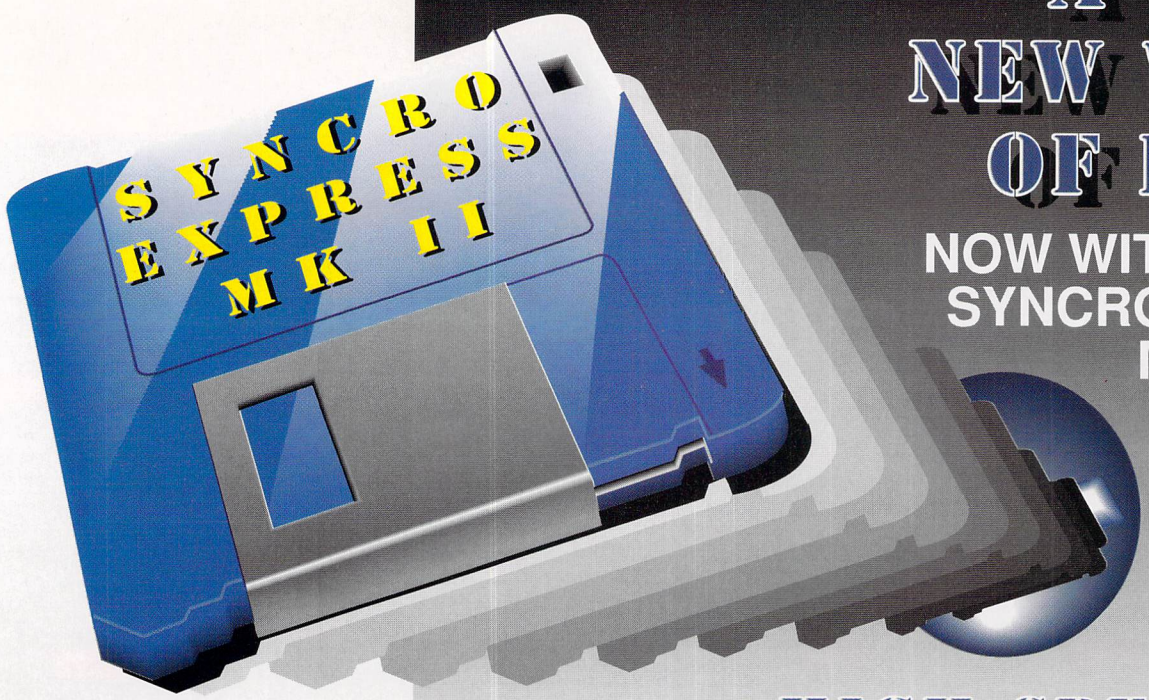
20 System Clock
This small circuit provides the main system clock which is fed to the processor. It runs at a speed of 8mHz – giving the ST and STE the edge over the Amiga games machine, which has the same processor but a slower clock.

21 ACIAs: Keyboard & MIDI
The ST and STE use a separate processor to detect which key you've pressed on the keyboard. This processor (not shown) passes its data to the main 68000 processor through one of these two Aysnchronous Communications Interface Adaptors (ACIAs). They store the key codes until the 68000 processor is ready to read them, enabling the keyboard processor to get back to reading keys in the meantime. The other ACIA is used for exactly the same job, but it buffers MIDI data from the STE's MIDI ports instead of key data.

22 ROMs
These two Read Only Memory (ROM) chips contain all the STE's main functions in one giant program called TOS, the Operating System. The program is run by the processor from the moment the power comes on. On the latest STE, the current version of TOS is 1.62, but there are six earlier versions you may find on other STs or STEs.

23 RS232 Booster & Buffers
Two chips and a few extra components here handle the STE's RS232 port. RS232 data is transmitted and received at 12 and –12 Volts because of the longer distances it has to travel. These signals are converted into standard 5-volt signals which then can be sent to the processor for processing.

24 DMA Controller
For speed, the ST and STE use the Direct Memory Access (DMA) Controller to squirt large amounts of data straight into RAM, rather than going through the processor. The processor initialises the DMA Controller, telling it where to get data from and where to store it. Then the DMA Controller takes over and the processor is free to do something else. Data is passed almost invisibly to and from RAM during the minutely small moments when the processor isn't using the memory.



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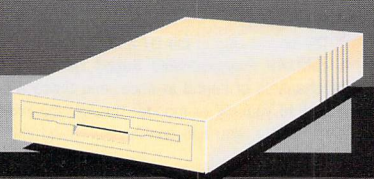
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Assembly pointers

More assembly language advice from *STF's* expert, Roger Pearson

Last month we looked at getting into assembly language programming – you don't really need any more than an ordinary 520ST! Then we examined sending a character to the printer using GEMDOS function number 5, `cprnout`:

```
move #"A",-(sp)   ;push letter "A"
move #5,-(sp)     ;advise GEM we want to
                  ;use the printer routine
trap     #1       ;let's do it, use GEMDOS
addq.l   #4,sp    ; correct stack pointer
```

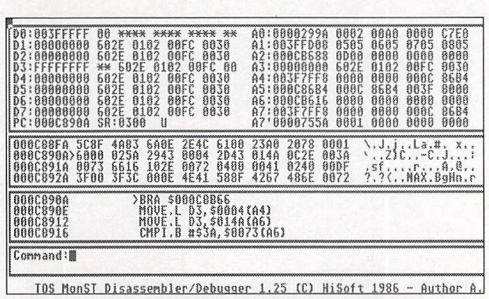
Although this is a simple example some common questions do arise when newcomers are first introduced to assembly language. What is the stack pointer and why use that for accessing the subroutines held in the ROM? The stack pointer is a special register – the last one of eight address registers held internally in the CPU, also referred to as register `a7`. Most assemblers accept `a7`, or `sp`.

In one go the instruction `-(sp)` takes a piece of data (address, number, and so on) and places it in memory at a place pointed to by the stack pointer. This area of memory, called the stack, is reserved for this purpose. The stack pointer is "pre-decremented," signified by the minus sign before `(sp)`. This simply moves the pointer down the stack to the next position, where the data is to be stored. The stack thus grows downwards from the top of memory.

The stack pointer is ideal for this sort of process because it can be used over and over again for many different subroutines. To ensure that the stack pointer points back to its original position after the trap is executed (so it can be used again), you add four bytes to the stack pointer. Adding is the opposite of decrementing, so you get back to the original place.

Another question that often arises is by how much do you need to add to the stack pointer to correct the stack, after a trap instruction? If you look at the amount of space the stack has used, you can then calculate the value you need to add to the stack pointer. In the above example you have twice moved a word and therefore used two words in total, so four bytes need to be added to the stack pointer to correct it. Once the stack pointer is used again the data that it previously pointed to is over-written.

A debugger is a program written to enable you to debug your program by examining the internals of the CPU – among other things. You can even execute one instruction at a time if you wish. It also enables you to look at the stack pointer and all the other registers used by the ST. If you look at the screen shot of the *MonST* debugger in action you should be able to see the stack pointer address register, `a7`, in the top window, which shows the CPU registers while the bottom window shows the program. (*MonST* is available in the *Devpac* package from HiSoft ☎ 0525 718181 – *Devpac 2* is £39.95, and *Devpac 3* is due any day now at £69.95.) Note that *MonST* uses hexadecimal numbers throughout. The ST, which uses the 68000 CPU, has eight address registers and eight data registers. They are all general purpose except for the register `a7`, the stack pointer.



● ***MonST* is a debugging program which enables you to see where the bugs in your program are.**

Bits and bytes

What is all this stuff about bytes? The smallest addressable place in your machine's memory is a byte, or eight bits. Of course a bit can be referred to but the byte has to be addressed first. A bit is like a switch – it can be either on or off – and a byte is a just a group of eight bits. A "word" is two bytes, and a "longword" is four bytes, or two words or 32 bits. Bits can be used to represent numbers by the use of binary notation, a method of counting using 0 and 1 where 0 is represented by the switch being off and 1 by the switch being on.

When the assembler instruction `move #5,-(sp)` or `move.w #5,-(sp)` is used, an area of the size of a word (two bytes) – the area pointed to by the stack pointer – is used to store the number five. A `#` is always used before a number which is declared to be "immediate data" (this term is explained shortly). The suffix `.w` in the instruction `move.w` denotes a word instruction. Most assemblers assume `.w` by default when no suffix is used. Other types of suffixes indicate the size of instruction being used – for example, `move.l` which moves a longword (four bytes) and `move.b` which moves a byte.

All comments in our source code have to be preceded by a "`*`" or "`;`". Also in *Devpac* any text after an instruction is taken to be a comment provided a space is between the instruction and the comment.

Your queries

A question from **D Robins** of **York.** How can I tell which screen resolution my program may be run in?

The XBIOS call number 4 can do that for you.

```
* getrez, return the screen resolution
* in register d0

    move.w #4,-(sp)     ;function 4
    trap #14            ;call the XBIOS
    addq.l #2,sp        ;correct stack
    cmpi.w #1,d0        ;is there a 1
                        ;in register d0?
    beq    do_high_res  ;if there is, jump to
                        ;the part of our
                        ;program "do_high_res"
                        ;
* not high res so do code for
* med res or low res here
* . dump user back to Desktop?
* .
* .
do_high_res
* high res code here
```

Note that register `d0` returns the following codes:

0 = low res, 320*100 pixels
1 = med res, 640*200 pixels
2 = high res, 640*400 pixels, monochome

Examine the last two lines of the source code:

```
cmpi.w #1,d0        ;is there a 1
                    ;in register d0?
beq do_high_res     ;if there is, jump to
                    ;the part of our
                    ;program
                    "do_high_res"
```

Here, `cmpi.w #1,d0` means CoMPare Immediate data, 1, with the contents of size two bytes (a word) in register `d0`. Immediate data means numbers, rather than numbers that may be contained in a register – for example, `cmp.w d1,d0` which compares the contents of register `d0` with register `d0`. The line `beq do_high_res` means Branch if EQual to label "do_high_res." If the register `d0` contains the number 1 then the program branches to (that is, continues from) the part of the program where the matching label "`do_high_res`" is found.

This routine is especially useful if you have written a program that is only suitable to run in high resolution. A user running the program in medium resolution could then be warned that the program is not suitable for medium resolution and can then be returned to the GEM Desktop. ***stf***

JARGON BUSTERS

BIOS Basic Input/Output System – handles, for instance, screen output and keyboard input

CPU Central Processing Unit, the 68000 chip

Desktop The GEM WIMP environment

DOS Disk Operating System, but used to signify the whole gamut of an operating system

GEM Graphics Environment Manager, from Digital Resource. The part of the operating system that handles graphic display (windows, icons and such)

GEMDOS Like MSDOS, except GEMDOS.

Hexadecimal Base 16 method of counting, favoured by assembly language programmers. Normal method of counting is base 10. We have 10 fingers, but computers use 16-bit words to do the counting.

Label A marker used to define a specific place in a program

Operating System The ST's internal routines, like disk formatting, sending characters to the screen, and so on. Held in the ST's ROM

RAM Random Access Memory. The part of memory programs can both write to and read data from

ROM Read Only Memory. Contains all the code used by the Desktop, disk input/output, and so on

WIMP Windows, Icons, Mice and Pull-down menus. Term for any interface that uses these elements. Also known as GUI – Graphical User Interface.

XBIOS eXtended BIOS, part of the ST's operating system

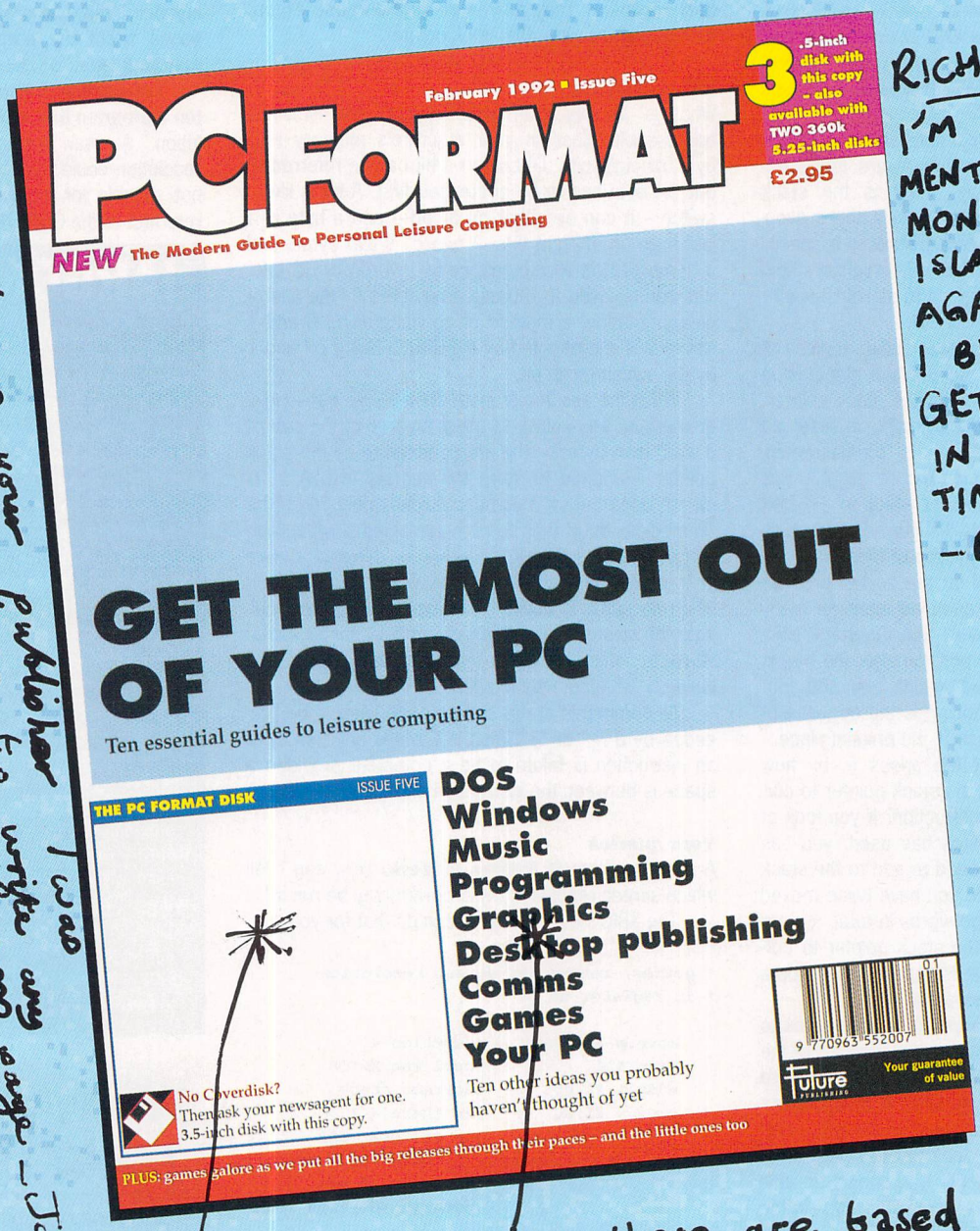
WE WANT *YOUR* TIPS

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That's all for this issue, but if you have any queries you'd like *FORMAT's* expert to tackle for you, send them in! Or if you already know something about assembly programming, send that in too – that way you can share your knowledge with well over 70,000 others and possibly win yourself £25! Write to: Assembly Pointers, *ST FORMAT,* 30 Monmouth Street, Bath, Avon BA1 2BW. We can only answer in these pages, though – personal replies are unfortunately out of the question.

PC FORMAT

The next issue of *PC Format* is numbered, imaginatively, 5 and will be appearing on every good newsagent's shelves on January 23.



RICHARD I'M NOT MENTIONING MONKEY ISLAND 2 AGAIN, SO I BET WE GET IT IN THIS TIME. -BOB.

Bob - as your publisher I was wondering if I have access to your work in progress page - Jane.

Martin - all of these are based on the same style of design and are two-page guides - Tim.

BOB - I'M TRYING TO DECIDE BETWEEN TWO PLAYABLE PREVIEWS, I'LL LET YOU KNOW WHICH IS BEST SOON - JASON.

For the finished version of all this and more, make sure you get issue 5 of *PC Format* on January 23

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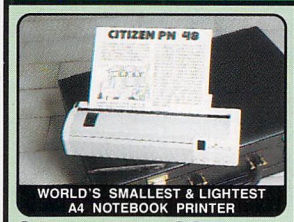
192 CPS **136** COLUMN

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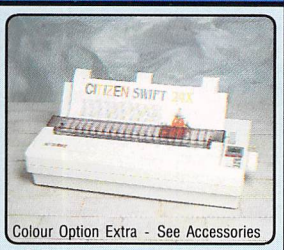
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24 PIN PRINTERS



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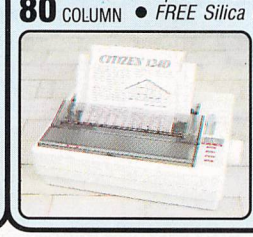
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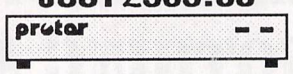
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Desktop TIPS

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TEN TOP NOT-TOO-TECHNICAL TIPS

1. Why can't I select High Resolution from the Set Preferences menu?
You can only use this ultra-fine screen mode when you have an Atari High Resolution monitor plugged in. On a TV or a colour monitor you can only get Low or Medium Resolutions to work. (See page 135 for explanations of what resolutions are all about.)

2. Why can't I get Accessory (.ACC) files to work?
You need to copy them to the main directory on a blank disk (that is, not inside any folders) and then reset your ST with the little spring-loaded button at the back. The Accessories are then hidden away in the Desk menu on the Desktop, even when you're running another program. So long as you've got the Desk menu, you can move the mouse up to the menu and click on the Accessory you want to run.

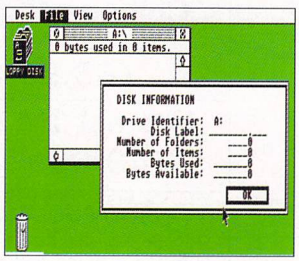
3. Why can't I run Accessories from inside all my other programs?
Accessories only work when your ST is still in GEM mode – that is, when there's a standard menu bar with drop-down lists at the top. When you're inside programs like games and some .TOS or .TTP programs, the Accessories are either dumped from memory or are inaccessible.

4. When I turn on my ST, it goes mad – the bell rings, and it refuses to reset properly. What's up?
It's probably just that you're holding down the right mouse button at reset-time – the ST doesn't like this for some reason. Alternatively, it may be that your joystick was set to auto-fire mode before resetting – this has the same effect.

5. When I double-click on some files and select SHOW from the dialog box, I get a screen full of rubbish, accompanied by bell sounds. What's going on?
This is perfectly normal – you've asked your ST to display a file which isn't a text file. Instead of human-readable words and characters, the file contains all sorts of purely ST-readable data not meant for your eyes. These gobbledegook files are usually data files, or sub-routines for programs which the ST loads in under the control of an associated program, so don't delete them. Just press the Q key to abort the listing and you return safely to the Desktop.

6. How can I make my Desktop appear faster?
Just put a blank disk into the drive and hit the reset button. The Desktop appears much faster than if you have no disk in the drive, regardless of whether there's a customised Desktop setup (a DESKTOP.INF file) on the disk. You can create your own personalised "boot disk" containing a customised Desktop just by formatting a disk and selecting Save Desktop afterwards. When you've got a setup you like, guard it from viruses by opening the write-protect tab and always use it start up your ST in Desktop mode.

7. The games disk I bought comes up with "0 bytes free in 0 items" when I open it from the Desktop. Is it blank or damaged?
Probably not, but it is protected. Game disks usually don't have a standard ST directory, so there's no list of files when you open up the window. The disk appears to be empty for the same reason. When you find a game disk like this, don't worry – it just means that you have to press the reset button to get the game to load. The game disk's special disk format enables it to load and run automatically.

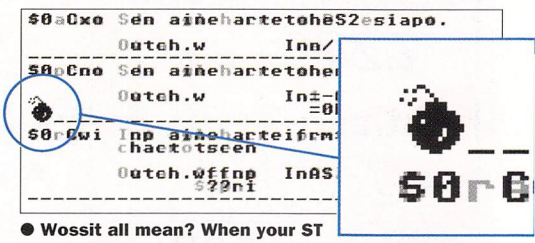


● **When you check a commercial games disk, you usually see a display like this. Where's all the data gone? Is the disk blank? Things are not always as they seem.**

8. I keep getting the warning "Data on the disk in Drive A may be damaged." What should I do?
If one of your disks which used to work starts going wrong and brings up this message, then press the "Retry" button. The disk is obviously borderline quality and you should get rid of it. You may still be able to get the data off the disk, even if it means doing a few retries. Your best bet is to try to copy the files onto another (safer) disk as soon as you get the chance.

If the message never seems to go away when you retry, then the disk is really knackered. There is still a way to get at least some of the data back, but it's a bit complicated. You need a special program called a "disk doctor" which can ignore the errors on the disk and still find the data. The best one we know of is *KnifeST*, available from HiSoft (☎ 0525 718181), priced £34.95.

9. My ST just crashed and displayed a load of bombs on the screen. Is my machine damaged? What about the program I was running?
The chances are that your ST is fine, but the program may be "bugged." The bombs are displayed when a program crashes in a way the programmer wasn't expecting – the number of bombs represents the ST's internal error routine which was called as a result. You could try simply turning your ST on and off and starting again – but you'll probably still have trouble with the program. Everything else should be as normal – there are no hardware effects to the bomb error display, so nothing is damaged.



● **Wossit all mean? When your ST crashes and prints loads of these little cherry-bombs all over the screen, it means something bad has happened to your program – but what about the ST?**

10. My mate's Amiga games-machine has a similar looking display of windows and icons. Is is compatible with the ST? Which is better?
Yours is the best, without doubt! The ST has the advantage of having all its operating system (including the GEM windows and menus stuff) stored internally on the ROM chips. The Amiga games-machine, on the other hand, only has a fairly basic command line interface built in. When windows are required, they have to be loaded from a separate disk file each time. Ugh! Thankfully, no, the ST and the Amiga games-machine are not compatible. (What a concept!)

CHAOTIC COLOURING

Here's a rather neat alteration, courtesy of **Tor Galaasen of Hardbakke, Norway,** for the FRACTA.BAS program which appeared on Cover Disk 28. Tor reckons that as you zoom closer and closer into the Mandelbrot set, you lose detail and colour because of the calculation rounding-up errors.

To improve the picture quality when zooming, you need to modify one line in the *GFA Basic 2* listing. You need a copy of *GFA Basic 2* on *STF's* Cover Disk 19 to do this – see our back-issue service on page 142 if you need a copy. Load the listing into the main editor and find the procedure called Draw_Mandel. Alter the line which reads: `Klr = K Mod Colnum` to the following, all as a single line of listing (the ø character is just to remind you not to enter a line return):

```
Klr = Trunc(Colnum*↵
((K/Maxiter)^(1/(Abs(Log10(↵
(Qmax-Qmin)/25))))))
```

This provides a different and dynamically changing transfer function which transforms a particular number of iterations into a corresponding pixel colour. The transfer function is dependent upon the magnification used – and, at greater magnification, the colours are a great deal more accurate. In the original program, the colours correspond to several different iteration levels which may appear all over the image. In the modified version, each colour corresponds to a single iteration level per screen. This means you could now create an animated zoom-in without losing colour quality as you get deeper into the Mandelbrot set.



● **Develop your Fractal skills even further by modifiying the Fractal program from Cover Disk 28. Don't worry, it's only one line of program code, but it's worth it.**

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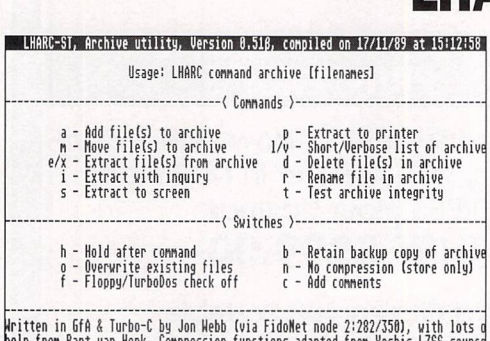
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LHARCING AROUND IN SPACE



● Just what is an archive? Why is *LHarc* different to *ARC*? How many versions of this famous file-cruncher are there? Read on and explode those myths.

Despite the massive capacity of even the standard ST, there are still times when you wish that all your programs were that bit smaller so that you would be able to get them all onto a single disk. Because of this, *LHarc* was created. *LHarc* is an archiving program which compresses files into a smaller space.

Once they're compressed, files can be sent down phone lines more quickly, or stashed into smaller space on hard drives, and so on. The only thing you can't do after compressing them is run them. Instead, they need to be de-compressed again, thus creating a new full-sized copy of the original program when you need it.

The trouble with nice ideas like this is that if different versions of the main archiving program exist, then incompatibilities arise. In the case of *LHarc*, programs in their compressed state are generally given a .LZH file extension. But this doesn't tell you which version of *LHarc* was used to compress it.

The first *LHarcs* were written on the PC by Haruyasu Yoshizaki (or Yoshi as he's known), then versions were made for UNIX by Yooichi Tagawa. Finally, Yoshi made the source code PD and versions started to get ported to the ST.

Since its arrival on the ST, *LHarc* has undergone several "tweaks" and one major change in the compression method. To find out the compression method used on the LZH file you're trying to decompress, use any version of *LHarc* and enter the command

`v A:\PATHNAME\PROGNAME.LZH`

(substituting the name of your LZH file for `A:\PATHNAME\PROGNAME`).

This generates a verbose listing of the archived files inside your LZH file, and shows the compression method. The most common method on the ST is –lh1 because it's the oldest. But recently the superior –lh5 method has been appearing on the ST, and you can't decompress an –lh5 archive with an old –lh1 standard *LHarc*.

So how do you tell which *LHarc* version you own? Easy. Just run the *LHarc* program and don't enter anything at all. The program should respond by bringing up its Help screen (also accessible by just entering `h`). This usually shows exactly which version of *LHarc* it is.

All you need now is some idea of which *LHarc* does what, and that's where helpful soul Paul Civati of the Tavern BBS comes in. He's knocked up a list of all the variations on the *LHarc* theme. Take it away, Paul...

LHarc 0.51 and 0.60

Jon Webb & Bart Van Herk

- 0.51 has a few bugs but both verions handle wildcards and filenames okay.
- Not as fast as the German 1.13c series.

LHarc 1.13c19, 1.13c20, 1.13c21, 2.00, 2.00a, 2.00b, 2.01a, 2.01c, 2.01d, 2.01e, 2.01g, 2.01h and 2.01i

Ported by Thomas Quester (based on PC version by Haruyasu Yoshizaki)

- These are known as the German versions.
- 1.13 series handles wildcards but not folders.
- 2.01 series handles wildcards and folders okay.
- 2.01 series uses –lh5 method, but can convert –lh1 as well.
- STE compatible.
- Much, much faster than the Webb/Van Herk versions – and smaller archives too.
- Make sure a space is inserted between the path and wildcard when extracting, as follows:

`x D:\TMP\ARCHIVE.LZH^D:\TMP\ *.*`

The space that's represented by `^` is *extremely* important.

XLHarc 1.1 / 1.2

Ported by Bill Shroka (based on UNIX version by Yooichi Tagawa)

- The X denotes UNIX compatability.
- Handles wildcards and folders.
- 1.2 can't delete a file from an archive.
- Not *SFX_LZH* (a self-extracting *LHarc)* version 1.6 compatible.

LHA 1.30

(Shareware – see page 45 for an explanation of what this means)

Roger Burrows (based on PC version 1.13b by Haruyasu Yoshizaki)

- Compatible as long as the correct switches are used.
- Sensitive about command and switch case – must be lower case.
- Handles folders if correct switch is put on the command line.
- Not *SFX_LZH* version 1.6 compatible.

***LHarc* Under Test**

This test was carried out by running the archivers from a Command Line Interface (CLI) and timings are in seconds. Each test was carried out using a text file and a binary file, both the same size.

	TEXT	BINARY
Original size	20,119 bytes	20,119 bytes
Packed size	7,603 bytes	9,285 bytes

Archiver	Add-TEXT	Add-BINARY	Extract-TEXT	Extract-BINARY
LHarc 0.60	30	20	6	8
LZH 1.13c19	11	10	4	5
LZH 1.13c21	11	10	4	5
LZH 2.01b	11	10	4	5
XLHarc 1.2	14	14	7	8
LHA 1.30	14	13	5	5

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FORMAT NEEDS YOUR DESKTOP TIPS

Remember how it was when you first started on the ST? Remember how helpful those little technical tips and pointers were to you? Well, how about returning the favour? If you've got a tip, a short cut, an undocumented feature, a bug, a password – in short, anything at all you've found that helps you get more from your ST – send it in. That way you can share your information with well over 70,000 fellow ST enthusiasts – many of them just panting to learn from you – and possibly win up to £50. Or, if you have a technical problem or query, we want to hear about that, too – it could get answered in these pages and even win you £20!

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AN ALL ROUND VIEW?

In the beginning there was *Degas Elite* by Tom Hudson, the first successful art package for the ST. As a result of its early popularity, *Degas Elite* is the most widely supported picture format on the ST. It wasn't long, however, before other art programs started to arrive and tried to topple *Degas* from the top spot, some with a degree of success!

This fight for supremacy has brought us some very good and innovative software, but has also left us with a bewildering number of picture formats on the ST, not to mention some of the most widely used formats on the Mac and PC-compatibles. Most art packages support several different formats, the three most common being *Degas* (.PI1,.PI2 and .PI3 – low, medium and high resolution respectively), *Neochrome* (.NEO) and GEM Bit Image (.IMG) files.

This means you can usually import that special picture you've just found into your own masterpiece with only one or two jumps between different programs. Here, courtesy of **Dazz Smith** from **Lancs** and **Daron Brewood** of **STUN BBS** (☎ 061 429 9803, up to 2400 baud), is the definitive guide to ST picture viewers and converters – we hope!

All the following picture formats can be viewed on the ST:

*.ART	ART DIRECTOR
*.CLO	NVISION
*.CP8	
*.CRG	
*.FLI	
*.DOO	DOODLE
*.GEM	GEM METAFILES
*.GIF	GIF IMAGES
*.GR8	ATARI GRAPHICS 8
*.GR9	ATARI GRAPHICS 9
*.IFF	IFF IMAGEFILES
*.IMG	IMG (GEM BIT IMAGES)
*.KOA	KOALA
*.LBM	
*.MAC	MAC PAINT
*.MAS	MAC STARTUP SCREEN
*.MPT	MICROPAINTER
*.NEO	NEOCHROME
*.PAC	STAD IMAGES
*.PC?	DEGAS
*.PDF	DF RASTERFILES
*.PGO	NVISION
*.PI?	DEGAS
*.RLE	CIS VIDTEX

PD programs you can use to view your picture format

program	CVtoIMG	GEMView	Guck	Picswitch	SPX Show	View GIF
version	1.2	1.0	1.7c	0.7		1.2
.ART	✓					
.CL?				✓		
.CP8						✓
.CRG			✓			
.DOO	✓	✓	✓			
.FLI						✓
.GEM		✓	✓			
.GIF		✓				✓
.GR8				✓		
.GR9				✓		
.IFF		✓		✓		✓
.IMG	✓	✓	✓			
.KO				✓		
.LBM						✓
.MAC	✓			✓		✓
.MAS				✓		
.MPT				✓		
.NEO	✓	✓	✓	✓		✓
.PAC		✓	✓			
.PC?	✓	✓	✓			
.PDF		✓				
.PG?				✓		
.PIC			✓			
.PI?	✓	✓	✓			
.RLE				✓		
.SC?				✓		
.SPC	✓	✓				
.SPU	✓	✓				
.SPX					✓	
.SUN		✓				
.TNY	✓	✓		✓		
.XBM		✓				

*.SCO	NVISION
*.SPC	SPECTRUM 512
*.SPU	SPECTRUM 512
*.SPX	SPECTRUM 512 EXTENDED
*.SUN	SUN RASTERFILES
*.TN?	TINY
*.XBM	X BITMAP FILES

Above is another list of picture file formats showing several PD programs which can display them. To order the program you want once you've found the one most useful for you, contact a PD libraries from *FORMAT's* comprehensive directory on page 48.

A BIT O' BLITTER BANTER

Paul Ley of **Hertfordshire** would like some details of the operation of the STE's blitter chip (blitter stands for bit block transfer processor).

One of the problems with GEM applications is that they can be slow, especially with programs or applications that process a great deal of data, such as DTP or graphics software. This is where the blitter chip comes in.

It is designed to take over some of the routines of the main 68000 processor (called the line-A opcodes) and it executes them faster than the 68000 can, to process graphics and other information without any other 68000 operation being delayed or stopped.

To do this, it works with data in the DMA (Direct Memory Access) register and uses a memory range independent of the 68000 processor. What this means is that the blitter can take chunks of memory and move them around within the system at high speed – without accessing the 68000 processor, thus leaving it free to run the main program. The larger the blocks of memory being moved, the more efficiently the blitter operates.

Among the processes that the blitter chip speeds up are block movement of memory (both screen memory and data), horizontal and vertical line drawing, window drawing and updating, text scrolling, graphics rotation and magnification, area filling and pattern filling.

This results in a marked speed increase in GEM operations, because GEM automatically uses the blitter for block graphic calls. Line drawing and text printing to screen can be speeded up by up to 20% and GEM box drawing speed can be increased by up to 80%. Without the chip you would need several KBytes of code built into the software to bring about the same amount of speed increase with graphics.

Unlike the 68000 processor, which operates in bytes and words, the blitter is bit-oriented, which makes it ideal for doing work with bit-mapped graphics. It is also able to deal with normal copy and transfer commands such as high speed RAMdisk operations.

So what use is it to you, the user? It's obviously not going to be much good for games software unless routines for the blitter are specifically written into the game code. The main advantage is with GEM based programs such as word processors, desktop publishing, graphics and animation software (such as the *Cyber* series), databases, spreadsheets and so on. So it is the "serious" user of the ST who is likely to gain the most benefit. Fortunately the majority of ST programs are GEM-based and use the blitter quite happily.

GFA Programmers' surgery

Once again, Barrie Capel tackles your *GFA Basic* programming queries

In this month's Surgery, we take a look at menus. First of all, let me nail my flag to the pole and say that I am a fully qualified GEM hater. Although fine for most purposes, the ST implementation is visuallly poor and lacks sparkle. I prefer to create my own user interface to suit my own tastes. However, some programs you are writing may demand the use of GEM menus, so your wish is our command...

A GEM drop-down menu is basically one long dimensioned string array, where each element of the array holds one item of the menu bar and drop-downs. The program sits in a loop looking for an "event" with the ON MENU function, such as moving the mouse into the menu bar area or pressing the mouse button over a menu entry.

Thankfully, *GFA Basic* takes care of most of the hard work, leaving you to decide what to do with the information it chucks at you. So, let's start with a simple example which, thanks to the wonders of modern computer science, is already written and can be found on this month's Cover Disk under the name GFA-MENU.LST. Use MERGE to load it into *GFA Basic*, and let's see what's so complicated about all this... You need *GFA Basic 2*, which was yours on *STF* Cover Disk 19. If you missed that, turn to page 142 and order a copy fast – that issue won't be offered again!

Loaded? Right, the first thing to say is that the main bones of the listing are only up to the end of the procedure `Menu_proc`. The rest isn't relevant to menus. Most options are dummies, but just so that you can see something, the last drop-down has working entries, and on the Desk menu the "About Me" entry works. The resolution is checked for, so it works in all resolutions.

Drop-down menus, along with the entries in each one, are held in the dimensioned string array `Menu_bar$()`. The first line creates this array, and normally has the same number of elements for `Menu_bar$` as there are entries in the menu structure. However, when you actually create your menu program, if you use a larger value you don't have to keep altering it each time that you find you need to add another entry. When the program is complete and the number of entries has been finalised, alter it accordingly. The array `A$()` is just for the "About Me" message.

The order in which entries are placed in the menu array is very important, unless you enjoy re-booting your ST! The order is as follows: first, menu bar title, entries in the first drop-down, null string. Second, menu bar title, entries in the second drop-down, null string. And so on, until you reach last menu bar title, entries in the last drop-down, null string. Finally, two more null strings.

The Data statements hold the menu headings and the items, and are read into the array with the `For... Next` loop. The last two elements of your menu structure must always be Null strings (" ").

In order to make the data statements easier to read, I always put all data for each drop-down menu on one data statement line.

The first element of the array (element 0) always contains the first menu's title – the bit that appears on the menu bar itself on the top line. In most cases, this is "Desk," and contains any Accessory programs that are installed. Even if you haven't got any, you must leave six slots free – the maximum allowable on the ST – just in case someone else using your program does have Accessory programs installed.

In our example, when the far left drop-down appears, the first entry is "About Me," followed by a separating line of minus signs, then the six .ACC slots. A null string denotes the end of that menu.

One useful feature is that any menu entry whose first character is a minus sign appears in light text and is unselectable, so you can prevent users running .ACCs or trying to select your separating lines. For the Accessory slots, any dummy text strings can be used since nothing actually appears unless an Accessory is installed.

The "Los Endos" bit is used so that the exact number of data entries doesn't need to be declared – the loop stops when it's read all the data, regardless of how many you tell it to count to.

`Menu Menu_bar$()` declares the string array to be used, and `On Menu Gosub Menu_proc` declares the procedure to jump to if an event is detected. The program then sits in the `Do... Loop` waiting for a menu event, such as you clicking on an entry.

You need to be able to detect events, and, for that purpose, *GFA Basic* gives us the function `Menu(n)`, where the value n determines the event to look for. The one we want is the number of the selected drop-down entry, and this is returned in `Menu(0)`.

The procedure `Menu_proc` simply checks this value, and jumps to the appropriate procedure. And there you have it!

Things to know... if you clear the screen, the menu bar is still there – you just can't see it – so do a `GET 0,0,319,10,bar$` and so on first, replacing it with `PUT` at the end of the procedure.

If you decide to permit Accessories to be used, `SGET` the screen first and replace with `SPUT` on exiting the Accessory, or you're left with a "hole" in your screen.

It is possible to place ticks in front of menu entries to show they are currently selected, by using `Menu n,1` and remove them with `Menu n,0` (where `n` = the menu entry number). You may, therefore, want to leave a blank space in front of each entry of the menus just in case.

`Menu n,2` and `Menu n,3` disable and enable menu entries respectively. This also applies to previously disabled .ACC entries.

Theoretically, there is a limit to the size of a menu system, along the lines of no more than two-thirds of the total screen area to be covered by all the drop-downs, but it's unlikely you'll find the need to use that many anyway!

Okay, that lot should keep you occupied till next month, so keep those problems rolling in to GFA Programmers' surgery, *ST FORMAT*, 30 Monmouth Street, Bath, Avon BA1 2BW. Sorry, we're only able to respond to queries in these pages, so no personal correspondence is possible.

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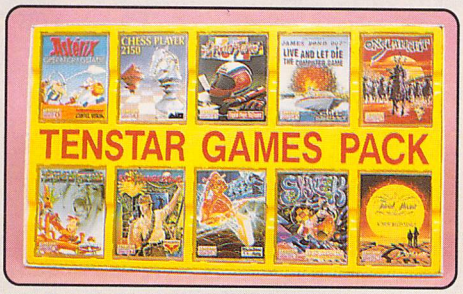
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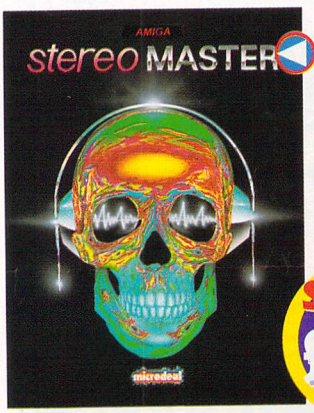
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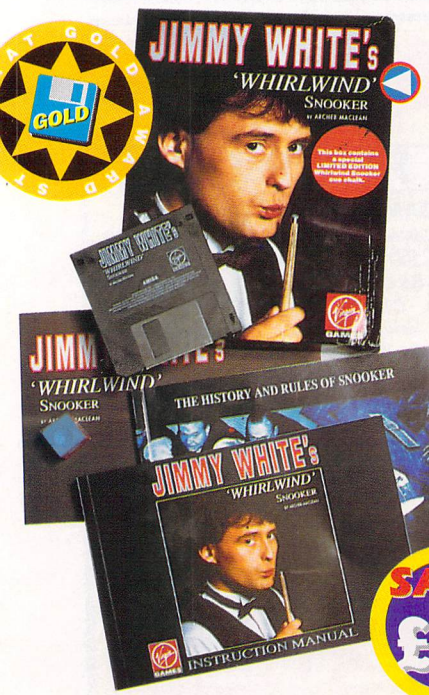
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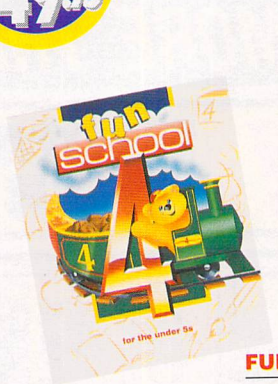
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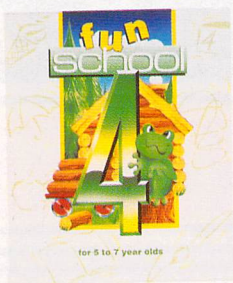
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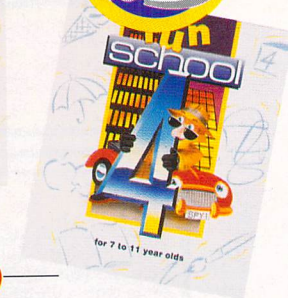
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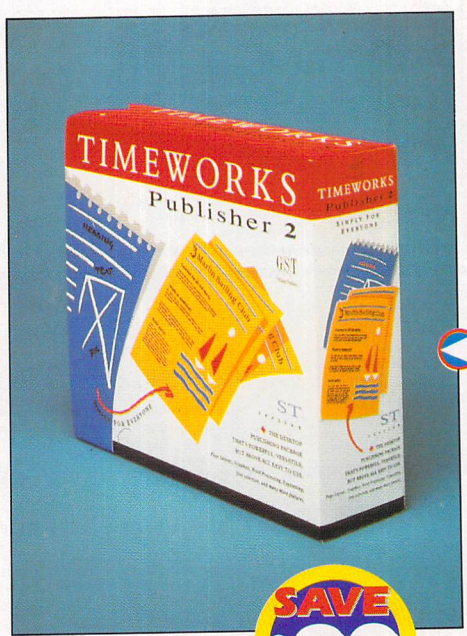
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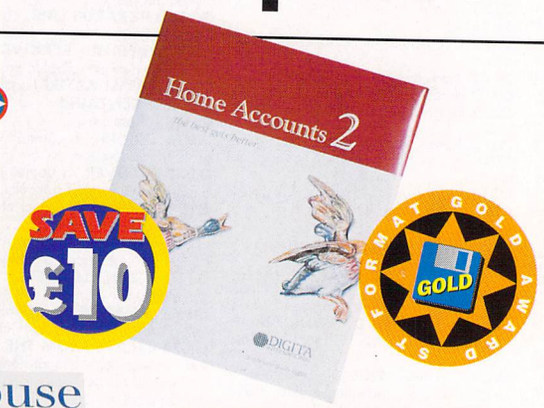
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A005 PALART, excellent art program with full docs on disk. Excellent features. *C*.
A009 COLUMBIA, A drawing program with some 3D elements & co-ord display. Studio (1Mb RAM) is a mneu driven drawing package. Both programs are from Germany.
A012 DOODLE, this disk has the original mono & colour versions. Also some Mandelzoom pictures.
A013 ST GRAPH, a comprehensive graph program that can handle bar, horizontal bar, stacked bar, line & dot charts. The disk is formatted so that DS users can access extra routines.
A015 FONTS2, 7 screen & desktop fonts. Columbia, Devoll, Hudson Saturn, Spokane, Thames & Universal Roman.
A018 CANVAS, a great art package that fully supports the STE.
A020 PALETTE MASTER, A good art package that offers the user up to 512 colours. *C*.
A024 FRACKTAL, is a fractal drawing program from Germany that comes with mono & colour versions
A025 FONTKIT 3.31, by Jeremy Hughes. An excellent program, well improved on 3.2. *D*
A027 ANI-ST, ex-commercial package, quality animation system. You draw the initial & final shapes & the ST draws the ones in between.
A029 MASTERPAINT, drawing package, excellent features. Mono and colour.
A030 PICWORKS, this is a utility for enlarging, reformatting & manipulating pics up to 3 times normal size. *M*.
A042 ST CAD v2.1, a medium or high res CAD package. Full docs very good. CALCPLOT, scientific calculator and function plotter.
A043 THE ARTIST, A great drawing package with all the normal options. *M*.

Clipart

C002 Various human figures, different cartoons, titles & more.
C003 Sports figures-high quality, July 4th logos.
C010 Occasional clips, various characters, etc.
C011 Loads more fruit & vegetables.
C012 Herbs & kitchen parts.
C013 Humorous clips plus the individual letters A-Z.
C015 Babies, boys & girls.
C016 More girls, scrolls & occasional clips.
C017 More Artdeco, baby boy & girl.
C018 More varied humorous clips

Wordprocessing & Desktop Publishing

W001-006 TEX, 6 disk pack, includes TEX the document processor. *M*.
W008 1st WORD, Wordprocessor. Fully GEM based professional wordprocessor.
W015 HYPERTEXT, Shareware prog suitable for the production of very professional documents. *MD*.
WO17 ST WRITER ELITE V4.1, top quality wordprocessor.

Games disks (colour unless stated)

G001 Warzone, Daleks, Haunted House & Mousemess.
G014 SUPERBREAKOUT, there are over 40 brick types all with special features. *M*.
G016 NAPOLEAN, conquer Europe, good wargame simulation. *M*.
G017 EMPIRE BUILDER, property developer simulation. LOST TREASURE & JUMPSTER.
G018 RUSH, move the bricks in order to create a way out for the ball.
G020 YAHTZY, an extremely popular game.
G021 UPSTART, an excellent shooting the cherries game. *S*.
G022 COMPANION, is a shoot 'em-up mission in outer space.
G025 ENGLAND TEAM MANAGER, Football team management.
G027 DIE ALIEN BLOB, a great shoot 'em-up, excellent graphics.
G028 TREASURE SEARCH, find the hidden treasure. *D*.
G032 BALLER, an arcade castle & cannons game graphic adv. *M*.
G033 ADVENTURE WRITING SYSTEM, create adventures.
G037 TUNNEL VISION, a great maze game.
G038 BERMUDA RACE 2, the challenge is to sail to Bermuda.
G039 INVASION, adventure set on a huge spaceship.
G041 HACK! is a Dungeon & Dragons text adventure.
G045 AYATOLLA, Your border is under attack from terrorists.
G046 ROBOTZ, addictive & very playable game. There are 40 levels.
G047 FRUIT MACHINE, is a great fruit machine simulator.
G056 SLIDER, 3 levels, quality puzzle game.
G063 SOLITAIR, with 3D graphics. Macpan is a kind of Pacman. Galaxy & Sprengmeister are strategy games. *M*.
G064 ATOMS, is a mentally challenging game for 2-4 players.
KILLERCHESS, fast & furious chess game. AMMOTRACK's a super race & blast'em game.
G068 SKIDPAN, a motor racing game written in STOS. (Not STE).
G069 STOCKMARKET, wheel & deal. GALACTIC WARRIORS, shoot'em-up.
G084 FLOYD THE DROID, ultra fast shoot'em-up. Sampled sound.
G085 AIR WARRIOR, a flight simulator. Full docs.
G086 COMPUTER PINBALL, as it sounds. DEVASTATOR, a 3D strategy game.
G090 TALESPIN, the wolf and the 7 kids.
G092 FUZZBALL, a great platform game.
G093 SHIPWRECK, educational maths with graphics. Not STE.
G094 ZOG, a great blasting game. SUPER SENSORI
G097 WIZZARDS LAIR, complete text & graphic adventure.
G098 UNDER BERKWOOD, An absolutely massive graphic adventure
G100 NAVAL BATTLE, battleships
G102 CENTAURI, a horizontal scrolling shoot'em-up
G106 VIRUS, a game with great graphics and sound.
G108 FLYOVER, a bombing raid with a reasonable level of difficulty.
G109 GLOB, you collect cherry cakes while avoiding pursuers.
G111 TRACKER, you drive your tracker through enemy territory.
G112 OVERLANDER, a good shoot'em-up .
G113 CHANCE, the Archons have taken over a space platform close.
G114 ESCAPE FROM THE TOMB OF RA, collect jewels to prolong your life, find the secret passages, and if you can, get out alive.
G115 MUTANT, reactor in a nuclear powered mine goes out of control. The workers start to mutate. You must get to the end cavern & destroy it.
G116 KEY TO ATLANTIS, underwater scrolling shoo'em-up.
G118 MARS MAZE, good platform game. Work your way up against time.
G119 STEEL, blast everything in sight.
G122 HEDGEHOG, along the same vein as FROGGER.
G123 THE NAME GAME, based upon the Sun puzzle. Create your own.
G128 TARK, great text adventure.
G129 BATTLE FOR THE THRONE, a role playing adv.
G130 LLAMATRON, a great shareware game by Geoff Minter. *D*.
G131 VIDEO POKER, Las Vegas poker playing machine.
G132 DERRICK THE DROID, a great mix of platform, shoot'em-up & puzzle game.
G136 PORK II, another send up of the ZORK series. Subtitled "The Gizzard if Showbiz".
G137 MORIA, a fantasy role playing game. *D*.
G138 SHOOT'EM-UP BUILDER KIT, make programming shoot'em-ups easily. *D*.
G141 DUNGEON! Multi choice fantasy adventure with some humour.
G144 HACKMAN, 50 levels of a great Pacman clone.
G145 ELEVEN CRYSTALS II, part 2 of a great text adventure by Fink.
G149 STARMAZE, Guide your craft around the various levels blasting the alien craft on your way.

Programming/ Language disks

P001 6800 ASSEMBLER,
P008-P010, C LANGUAGE DISKS 1, 2 & 3 of Elementary C, a set of 3 disks.
P012 CPM EMULATOR, this is a CPM-8 version 2.0 that runs at 2MHz.
P013 CPM UTILITIES, for P012
P017 PROGRAMMING EDITORS, CONTEXT V2, PRO-ED & P-EDIT, plenty of features & documents.
P020 SOZOBON C, probably the best PD C compiler with full K&R compiler support. *D*.
P022 SPRITE EDITOR, create & save your own sprites.
P023 C TUTORIAL, disk manual, an excellent intro into C programming.
P026 MKRSC, a simple GEM resource construction utility.

Communications Disks

C005 UNITERM V2.0A, with autodialler & phone book.
C006 VANTERM 3.71 & 3.8, is just about the best PD communications package around.

Applications, spreadsheets, databases, etc.

S001 DATABASE 1, this is a GEM driven database.
S002 ST SHEET, this is a very good quality spreadsheet. *C*.
S005 B/STAT V2.01, this is a sophisticated graphing & statistical analysis program. *DX*.
S007 OPUS V2.2, This program is a GEM based spreadsheet & charting program *DX*.
S009 WG DATA, high quality DTB with custom screen layout. Full docs.
S011 DOUBLE SENTRY, an excellent fully working accounts package (no VAT).
S013 INVENTORY PRO V2.0, is a fully featured stock control system. Very powerful.
S016 SHEET V2, fully featured spreadsheet. Similar to Lotus 123 docs.

Music

M001 COMPOSER, a music creation program.
M012 SINGING CALIFORNIAN, raisons
M013 MUSIC WRITER, this program lets you create music on screen.
M016 CASIO CZ SOUNDS & EDITOR.
M018 ACCOMPANIST 2.3, full featured midi sequencer. *C*.
M020 XBIOS, music construction kit.
M021 PERCUSSAMAN, is a 4 track, 16 instrument, digitally synthesised sequencer.
M022 SOUNDTRACKER PLAYER & MODULES. D DREAD1, D DREAD2, PAT MIX, RVB DEMO, SPREAD.

Educational

E002 WORLD MAP GAME.
E004 SPELLING, made easy.
E008 CHUNNEL, a French to English & vice-versa tutorial game, with words & short phrases. *C*.
E011 TYPING TUTOR (2), with full documentation.
E013 MATHS MADE EASY, Another great program with speech synthesis.
E014 KIDGRAPH, KIDMUSIC, KIDPIANO, KIDPOTATO *C*
E015 KIDPUBLISHER, DTP, Kidsong.
E016 DOT2DOT, join the dots to make pics. Also create your own.
E019 SOLAR SYSTEM GEOGRAPHY.
E020 GEOGRAPHY TUTOR a great shareware package.
E021 ZOO MAKER, a game with a difference, you are asked questions and the computer tries to guess the animal.
E023 COLOURING BOOK, superb program for the young.

General

F005 CONSTELLATIONS, a comprehensive Astronomers disk. *M*.
F009 THE PLANETS, a slide show around the planets. *D*.
F013 POOLWISE V3.5, a sophisticated pools predictor. Med res.
F016 ST TOUR, excellent guided tour of your ST.
F017 YOUR SECOND ATARI MANUAL, a 250Kbyte text file on the ST
F019 GENEALOGY, shareware package for tracing family trees.
F021 BUSINESS LETTERS, 100 business style letters in ASCII code.

Demos

D005 THE DEFINITIVE DEMO, by the Lost Boys. *D*.
D006 SLATATANIC CULT, music demo I & music demo II. *D*.
D007 ASTERIX DEMO, digital sound & pics.
D008 BOMB THE BASS, demo.
D009 TRANSYLVANIA DEMO, by the Lost Boys. *D*.
D010 SOUND CONNEXIONS DEMO. *D*.

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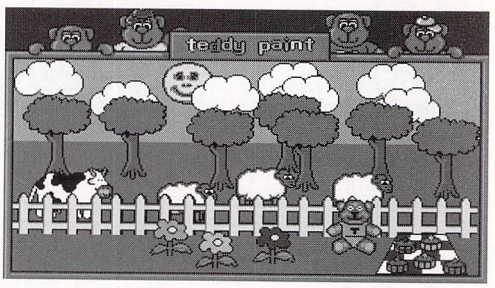
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When school is fun

Fun School – possibly the only mention of the word "school" that kids enjoy hearing! The latest in the series is out. What's it all about? Was it worth waiting for? _STF's_ education specialist Terry Freedman investigates



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Fun School 4

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Parents who tell you schooldays are the best days of your life must have forgotten how awful their own schooldays were. Educational software packages like the _Fun School_ series have helped make learning much less painful, and parents and children alike have welcomed them with open arms. _Fun School 2_ was the first edsoft package to reach the games-dominated software charts, and the _FORMAT_ Gold rated _Fun School 3_ series has been a top-seller since its release over a year ago. Each is a collection of programs for several age groups, and the long-awaited _Fun School 4_, just released, follows the same format. So what does it have to offer?

SPOT THE DIFFERENCE

The three packages in the new _Fun School 4_ range have several things in common:

- They all feature a central character who goes with you wherever you go within the program
- There are several different programs within each package – and the emphasis is on _different_
- You can change the level of difficulty of play
- The emphasis is on learning through play – hence there are appealing tunes and interesting animations
- Mistakes are pointed out or corrected in a positive manner, which is another way of saying that you don't get called a dunderhead if you get it wrong.

PSSST...

There are a couple of things you should know about before you rush out and buy these programs:

- The manuals make a big deal out of the fact that they're all in line with the National Curriculum (which is good), but be aware that the National Curriculum has changed about six times already (and that's just the past week!)
- There's no provision for keeping scores within the programs, so it's not easy to keep tabs on where the gaps in your child's knowledge and ability are
- These are very wide-ranging in subject matter. If you want something a bit more specialist in nature, check out the Scetlander range (reviewed in the last couple of issues of _STF_ – see page 142 for details of how to order any you may have missed).

Under 5s

When you load this disk, you're introduced right away to Teddy. He starts by blowing a balloon and getting carried away by it, only to fall from the sky a few seconds later clutching the main menu! All this to the accompaniment of music which might not make the Top Ten but isn't too bad.

The manual advises you to take your child through the program by reading out a story devised for this purpose. It's designed to help you give instructions at the appropriate level of language.

The programs on offer are _Addition_ (a maths package), _Teddy Paint_ (a graphics program), _Fun Train_ (a vocabulary-related program), _Teddy's House_ (about colour recognition), _Teddy's Karaoke_ (music) and _Teddy's Books_ (about putting things in order).

Each game has a number of levels, ranging from the relatively simple to the relatively complex. For example, the _Addition_ program at Level One gets you counting the number of objects on a blackboard. Level Two gets you adding sets of objects. At Level Three you have to add numbers expressed as figures. In other words, as you become more skilled at counting and adding objects, you can start to develop a mental connection between, say, the sight of four objects and the figure "4."

Another example: the _Books_ program requires you to say which book Daddy is reading. At Level One you can work out the answer by looking at the number printed on the books on the bookshelf and seeing which one is missing. At Level Four, though, the numbers on the books aren't visible, so you have to count or keep guessing, prompted by screen messages like "bigger."

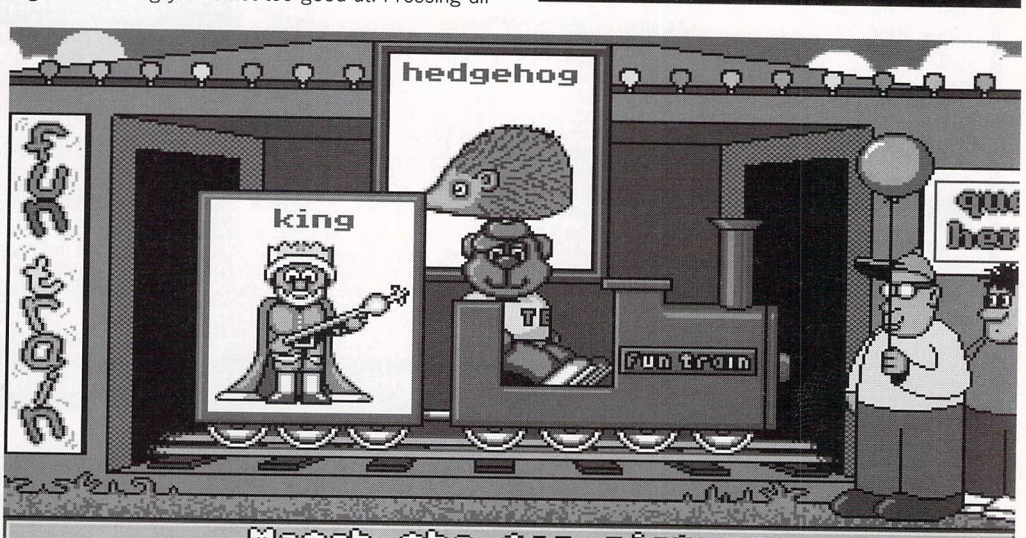
Teddy Paint is quite good fun, especially if drawing is something you're not too good at. Pressing different keys on the keyboard enables you to get different "scenarios" and the sprites to go with them. For example, press F2 and you get the "country" sprites. Then press "," and you get a cow, press "." for a sheep, and press "/" for a fence – brilliant! You can also change the colours, draw freehand and print out your masterpiece (and save it).

This program makes it so easy to get good results that it's quite addictive – perhaps _too_ addictive! Mind you, all work and no play etc... Not that the other programs seem much like work. There is another side to the _Paint_ program, though – it encourages you to explore the keyboard to find out what the different keys do – _much_ more exciting than getting this info by pressing <Help>! It also tests your short term memory quite well too, when it comes to recalling what each key does!

One criticism of this package is that none of the programs is set in a real world context. Still, for this age group it's probably more important to make the learning fun rather than realistic.

● **Contents: one double-sided disk; 16 page manual; car sticker _(car sticker?)_**

PRESENTATION	9
EASE OF USE	8
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MU.05 Sheet v2.0; Spreadsheet....
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BE.16 Chunnel; French vocabulary game
SO.04 Notes; Chord Dictionary; 2500

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→ 5 – 7 year olds

The central character in this package is Freddy the Frog, who takes you through every program. There are six separate parts: *Library* (where you have to sort things into alphabetical order); *Basketball* (concerning series – such as "a, b, c" and so on); *Opposites; Typing; Log Cabin* (maths) and *Shopkeeper* (more maths).

When you come to think about it, it's amazing how many variations on a theme you can have. For example, both *Log Cabin* and *Shopkeeper* are about maths, and include addition and subtraction problems. But the programs tackle these problems in different ways.

In the *Log Cabin* scenario you have to add or subtract in order to obtain the correct length of wood to help you build a log cabin. In *Shopkeeper* you take the part of either a customer or a shopkeeper, depending on the level you're on, and you have to add or subtract money and identify coins. Both of these programs are inventive and do their job well. *Library* and *Basketball* are about sorting things into an order, but the two programs adopt a totally different way of reaching their objective. It's this willingness to look at a problem or skill from different angles that gives the *Fun School* range its strength and appeal.

Another good aspect of this particular package also is that there are more levels of difficulty than there are for the younger age group and a bit more parental input – for example, you can edit the details of the books in *Library*.

And, of course, most of the individual programs are set in a realistic context: after all, there's a much more obvious point in learning how to add or subtract when it comes to buying something than in doing sums from a blackboard.

Talking of which, the *Opposites* program is a bit disappointing. It involves selecting from a list of words the opposite of the one presented. Get it right and there are some interesting animated effects. Well, okay, it's good fun, but not particularly realistic. Worse, though, is the fact that it's really almost a guessing game, at the higher levels at any rate, in which you have to guess what the program thinks is the opposite. Unfortunately, you can't edit the words used, so you're stuck with what you're given.

Never mind. Maybe a good way to use the program would be to ask your offspring what *they* would regard as a better word. At least that'll help to teach 'em that computers don't know everything!

● **Contents: one double-sided disk; 23-page manual; registration card; car sticker**

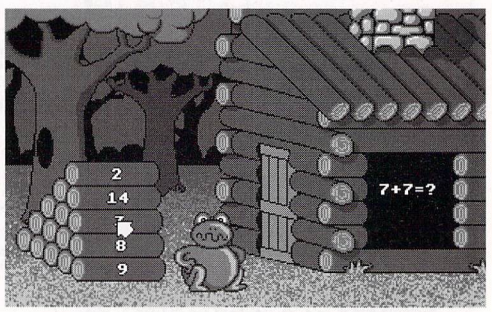
PRESENTATION	9
EASE OF USE	8
LONG TERM INTEREST	8
VALUE FOR MONEY	8
EDUCATIONAL VALUE	7
OVERALL	**85%**



● ***Library*** **looks simple enough – but believe it or not, coping with the order of ten things at a time is quite hard, even for adults.**



● **Getting away from a crocodile is a good incentive to finding your way around the** ***Typing*** **keyboard! (Er, it seems the "W" key didn't move fast enough...)**



● **Get your sums right and the** ***Log*** **cabin gets built. Shame the sums bear no relation to the actual task – and what if you remove the bottom log in the pile?**

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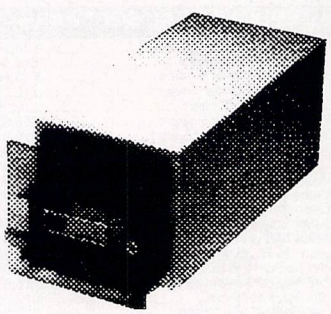
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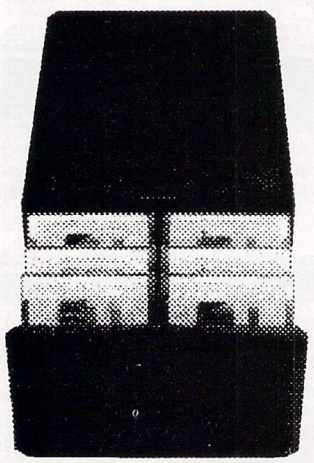
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Here the central character is Sammy the Spy. Same general format: six different programs, lots of noise – er, music – and some pretty good animation effects, plus several levels of play for each game.

First there's a game called *Proportions*, which, oddly enough, is about proportions. You're shown a group of objects and you have to answer questions like: "What proportion have grey moustaches?" There are three levels, and they get progressively harder by having a larger number of objects and also by changing the type of proportion you have to work with.

Next comes *Spy Quiz*. This is a wide-ranging quiz which tests loads of things, ranging from spelling to general knowledge questions. There are four levels of difficulty, and on each level you can set the time limit for each question at 10, 20 or 30 seconds.

Exchange Rates is a good idea and well thought out – especially the way there's an on-screen calculator which you can use to help with the sums (but only three times!). In case you haven't guessed yet, what you have to do is convert one currency to another. A shame that European currencies are used, though, 'cos there probably won't be more than one soon... Still, as a multiplication-tutor this is great – so much more interesting than learning times tables (yeccch)!

Timetables involves checking train arrival and departure times from notice boards and, on Levels Three and Four, carrying out a simple addition or subtraction. Actually, even the observation aspects alone are worthwhile, as you know if you've ever tried to make heads or tails out of all the information boards at an airport or main railway terminal!

Spy Travels concerns geography. With six levels to choose from, you can simply point at an area on the map to find out what it is, or at the other extreme you can navigate a plane to different locations. This is very good fun, and older kids could get a lot from it too. On the other hand, its main value is to whet your appetite for the subject – it's not detailed enough for really serious work. Also, on Level Six, there seems to be no penalty for flying all over the place as long as you arrive at your destination. You'd think there would be a "best route" option or a timer built-in. If this is what especially interests you, look up the *Geography Tutor* program available from several Public Domain libraries – see page 48 for *FORMAT's* comprehensive directory. Finally, *Desert Dates* is a history program which requires you to pinpoint dates of certain events. As you move up the levels (of which there are four), the dates become more and more precise. This is the weakest of the six programs, but then what *can* you do to make a load of dates interesting? Maybe the answer is not to bother trying...?

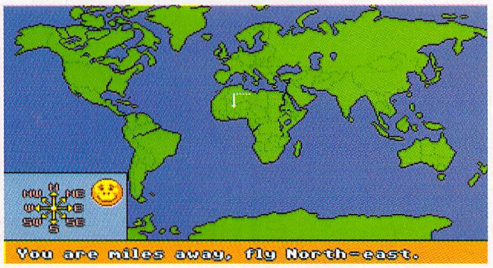
Overall, this package is both entertaining and educational – not a bad combination at all. There are one or two "buts" which apply to all three *FS4* packages (see boxouts, page 129), but nothing's perfect! The most disconcerting aspect of this one is that the mouse doesn't work in it, which makes it slightly less easy to use than the others.

Contents: one double-sided disk; 23-page manual; car sticker

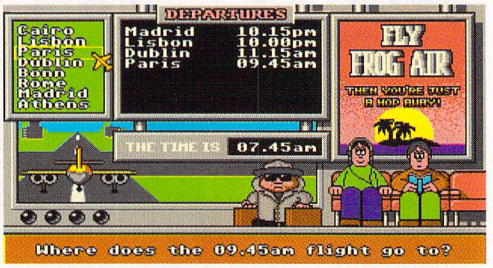
PRESENTATION	9
EASE OF USE	7
LONG TERM INTEREST	7
VALUE FOR MONEY	9
EDUCATIONAL VALUE	7
OVERALL	**82%**



● **Excellent graphics and a strong central character help to create an interesting atmosphere in *Spy Quiz*. The questions aren't bad either...**



● ***Spy Travels* helps you learn a sense of direction, as well as where the various places are. (Personally, I always travel by auto-pilot...)**



● **With all the colour in *Timetable*, it's hard enough to read off the information, let alone do sums with it. In other words, pretty realistic!**

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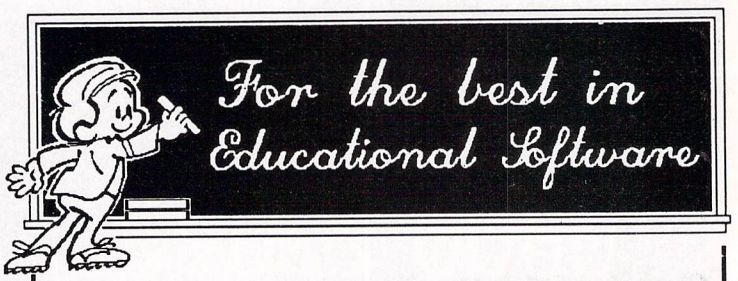
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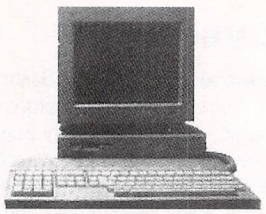
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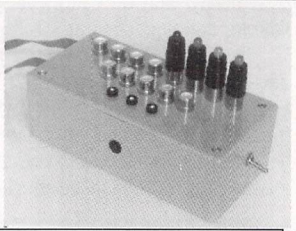
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Alert boxes: Your ST warns you that certain operations, like **formatting** a disk or erasing files, can be dangerous to data. A **dialog box** pops up with an alert message which you must read and acknowledge (usually by clicking on "OK") before proceeding.

Application: Little-used alternative name for "program," so-called because you apply your ST to the task in hand. Also the form you use to beg for a job.

ASCII: Acronym for American Standard Code for Information Interchange which is the standard method for sending data from computer to computer. Every character and punctuation mark has a unique code number.

Auto-boot: See **Boot.**

BASIC: Acronym for Beginners' All-Purpose Symbolic Instruction Code, which is the most popular and easiest to learn programming language for newcomers to the ST.

Baud Rate: Pronounced "board," the speed in **bits** per second (bps) that your ST sends data from its serial port – a connector at the back that you use mainly to connect modems. All transmissions over telephone lines conform to a standard baud rate of either 300, 1200, 2400 or 9600 baud. It is *not* the rate at which you get bored playing *Gauntlet 3*.

Bee Icon: The ST changes the mouse pointer to a bee when it's busy doing something you can't interrupt, like loading data from a disk.

Bit: The smallest unit of computer data. Eight bits make a **byte,** four bits make a **nibble** (no, really). See also **Kilobyte, Megabyte.**

Boot: You boot your ST by (a) turning on the power or (b) pressing the reset switch when you have a disk in the drive. The ST reads the first part of the disk (the bootsector) and then displays the **Desktop.** The bootsector can be set to auto-boot a specific program, which runs immediately upon booting with no input required from you. Most games load like this.

Bug: An error in a program, which may make it **crash.** Also a pathetic joystick.

Byte: Computer **memory** is organised into groups of eight data **bits,** called **bytes** – short for "by eight." (see **Nibble).**

Cartridge: Cartridges plug into the port on the side of the ST and often contain a program on a chip, which loads instantly since it does not require the use of the disk drive and uses none of your ST's RAM.

Click: You perform a click by positioning your mouse pointer on an **icon** on screen and quickly pressing and then releasing a mouse button once.

Close Box: The small box at the upper left-hand corner of a **window,** used to close an active window – that is, the one you're working in.

Cold start: Rebooting your ST by turning it off, leaving it for 30 seconds and then turning it on again with the power switch. This is the only way to get rid of viruses in memory. See **Warm Start**

Colour Palette: The ST has the capability to display 512 different colours (STEs can show 4096), of which 16 can be on screen at once. This current set of 16 colours is called the colour palette.

Control Panel: The **Desk Accessory** that came with your ST. When loaded, it enables you to change all sorts of system-wide settings, like the keyboard repeat speed and whether you want the keys to beep each time they're pressed.

CPU: Acronym for Central Processing Unit – the chip inside the ST that handles the main processing tasks.

Crash: What happens when your ST goes wrong for some reason: a badly-written program, a data file is missing, or something similar. Sometimes the ST displays a number of bombs which can help programmers find the problem, but usually the ST just freezes and does nothing, forcing you to **reboot.**

Cursor: The marker (usually a rectangular black shape) that shows where the next character you type will appear. Also the Editor when he sees how late we all are with our pages.

Data file: Used by programs to store information they need to run, such as text or graphic data, or by programmers to store user instructions. The data file **icon** is like a sheet of paper with one corner folded over.

Desk Accessory: Accessories are programs with a filename ending in .ACC. Stored in the **root directory** of a disk, these are automatically loaded into the ST's memory on booting. They can then be run at will, by selecting the relevant name from the **GEM** Desk menu, at the top left of the **Desktop.** You can have a maximum of six loaded at once. Also that stupid little executive toy you keep on your desk and which everyone else hates.

Desktop: See **GEM Desktop.**

Dialog box: Messages your ST displays, informing you of the effects of some operation or other. You're also given a number of options, one of which you must select to remove the dialog box from the screen.

DiskCopy: The ST's copy program. Move Floppy Disk Icon A on top of Floppy Disk Icon B and it attempts to make an exact copy of the source disk, but it's not infallible. For example, it can't copy non-standard disks (like the *FORMAT* Cover Disk).

Disk Drive: Your ST's main storage device. It uses this to read from the **floppy disk** and write data to it. On bootup, the ST displays a Floppy Disk **icon** on the **Desktop** for each disk drive you have connected.

Double-click: Two quick **clicks** on the left mouse button. Double-clicking opens **files,** runs programs and enters **folders** and disks. The speed of a double-click can be set with the **Control Panel.**

Dragging: The method for moving **icons** around the **Desktop.** Point at the chosen object, press the left mouse button and hold it down. The object selected should turn into an outlined **ghost-image** which moves around the screen as you move the mouse. Let go of the mouse button to deposit the icon in its new position.

DTP: Acronym for desktop publishing, the high-tech method of creating newspapers, magazines and books using computers for typesetting and printing.

File: A chunk of information stored on disk. Could be a program, data for a program, a instruction document or any other collection of storable information.

File Copy: To copy individual files from a **window** to a disk or from a window to another window. You copy a file **icon** to its new home by **dragging** it.

Floppy Disk: The actual storage medium where data is kept. Made of a similar material to audio tape, but it's flat, round and er, floppy. Kept safe inside a plastic sleeve, which you insert into a **disk drive.**

Folder: The ST's name for a directory. You can store many (usually related) **files** inside a folder and move them all around at once by moving just the folder **icon.** To access a file which is inside a folder, simply **double-click** on the folder icon to open it up. Folders can also appear inside other folders, up to eight deep.

Font: A set of printing or display characters of a particular type, size and style. The default font is the one used to display everything on screen. Some programs enable you to load and use other fonts.

Format: You prepare a blank disk to take data by formatting it. The ST checks the disk and arranges the internal structure of the disk so you can use it. Formatting erases all data which is on the disk in the first place, so use it with care. Also the second half of the name of the best ST magazine in the world.

Full Box: This gadget (top right corner of a window) opens the currently active **window** up to its maximum size (usually the full screen) to enable you to see many more files than you'd see with a small window. Clicking it again returns the window to its previous size.

Function Keys: The topmost row of keys on the ST keyboard, marked F1 to F10. These can have a multitude of different functions (or none at all), depending on what the particular program you're running uses them for. Many serious programs use them to do repetitive tasks at the touch of one key.

GEM: Acronym for Graphics Environment Manager. This program is the part of the ST's operating system which handles all the **windows, icons,** and graphics functions used on the **Desktop.**

GEM Desktop: The "file management" screen which includes (at least) two Floppy Disk **Icons,** the **Menu Bar** and the **Trash** Icon. You get this when the ST **boots** as normal, before running any programs. From here, you can select various functions (such as running a program) and any **Desk Accessories** you have loaded.

Ghost: An outline of an **icon, file** or **window** which shows the current position of that item as it is dragged around to a new location on the **Desktop.** Also a nasty ST **virus** which flips the up and down axis

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of your **mouse,** so it operates backwards.

Hard Disk or Hard Drive: Another storage medium, this time with a non-removable magnetic surface. It's much faster than a **floppy disk** and can hold a lot more data.

High Resolution: One of three video display modes available on the ST. High Resolution consists of 640 dots horizontally by 400 dots vertically and is black and white only. You need a high resolution monochrome **monitor** to use this mode.

Icon: A small picture on the **Desktop,** representing an item such as a **disk, file** or **folder.** You select files and operate programs by **clicking** on the appropriate icon. Also used in some programs and games to enable you to give commands or make selections.

Information Line: The line at the top of a **window** which shows how many **bytes** are used and how many items there are.

Input/Output (I/O): The name for the communications process that occurs when your ST talks to its **disk drives,** printers, and so on. Input is data that comes into the ST, from a floppy disk, for example. Output is the reverse – for instance, data sent out to the screen or a printer.

Interface: A hardware connection that enables your ST to communicate with a **peripheral** device. Could be a printer cable, or a **hard drive** connection, for example.

Kilobyte (K): 1024 bytes (not a thousand bytes, because it's binary for 210).

Joystick: Device that you plug into your ST to control many games. Also... er, perhaps not.

Low Resolution: This is another of the ST's video display modes. Low Resolution has a display size of 320 horizontal dots by 200 vertical dots and can display 16 colours on screen at once. If you have a **high resolution** monitor, you cannot access Low Resolution mode.

Loop: See **Loop.** (Ho ho ho)

Machine Language: The sequence of numbers to which everything (BASIC programs, resource files and so on) is eventually translated so the CPU can understand them.

Medium Resolution: Another of the ST's three video display modes. Medium Resolution has a display size of 640 horizontal dots and 200 vertical dots and can display four colours on screen at once. Medium resolution cannot be accessed on a **high resolution monitor.**

Megabyte (M, MByte): 1024 Kilobytes (see **Kilobytes, Bytes**).

Memory: The chips inside the ST which store data and programs. There are two types: RAM (Random Access Memory) which can be written to but loses its data when you turn off the power; and ROM (Read Only Memory), where the main operating system is kept, which retains its data without power, but cannot be written to. Memory is also, er, um, what is it now? Er. Never mind.

Menu Bar: The bar at the top of the **GEM Desktop.** When you start up, it displays the Desk, File, View and Options menu titles. Other **applications** may have different headings.

MIDI: Acronym for Musical Instrument Digital Interface. A built-in standard **interface** designed to connect your ST to a musical instrument such as a keyboard or a drum machine.

Modem: Short for MODulator/DEModulator. A device which enables you to connect your ST to a telephone line and thereby communicate with other remote computers and bulletin boards.

Monitor: A device like a TV set, but without the ability to receive TV transmissions. You plug it into the monitor socket on the ST which sends pure video signals straight to the screen, for a better, clearer picture. **High res monitors** are monochrome and can only use the ST's high resolution mode.

Mouse: The device which moves the pointer around on screen. You slide it around on a flat surface and the small rubber ball inside picks up the movement and relays it back to your ST, which updates the pointer's position on screen. A mouse also has two buttons on the top for selecting files and operating programs by **clicking.**

Move Bar: The bar at the top of a **window,** just above the **Information Line.** You click on this bar to drag the whole window around the **Desktop.** Also what you do when you're chucked out of the pub.

Nibble: Four **bits,** or half a **byte,** hence the name.

Ninety nine: Type of ice cream.

Parallel Interface: A standard **interface** for connecting your ST to a printer. It's the one marked "Printer" on the back of your ST.

Partition: Hard disks are subdivided into smaller sections called partitions. To the ST, each partition looks like a separate **disk drive,** but they are actually part of the same drive.

PCB: Acronym for printed circuit board, which all the chips and components of the ST are soldered onto. Also PolyChlorinated Biphenyl, a nasty gas pumped into the atmosphere when you burn toxic waste.

Peripheral: Any device which can be connected to your ST, like a **monitor, printer, disk drive,** etc.

Pixels: The dots which make up the ST's video display. The name comes from "picture elements."

Pointer: The arrow which you move around the **Desktop** to select files and operate programs.

Printer: A device to provide you with a hard copy of text or graphics created on your ST which is of sufficiently high quality for you to make your own professional-looking publications.

Program File: A file which contains an **application.** Program file **icons** in a **Desktop** window are boxes with a shaded top edge.

RAMdisk: A program that sets aside a part of memory and lets you use it as a very fast **disk drive.** Very helpful for single drive owners who get tired of disk swapping, since it enables you to perform copy operations in two quick moves, but everything in the RAMdisk is lost when you turn off.

RAM, ROM: See **Memory.**

Reset Button: The small, spring-loaded, grey button at the back of your ST. Press this and the system re-boots (see **Boot**) and forgets whatever it was previously doing. This doesn't kill any internal viruses, though; to do that, you need to switch off the main power for at least 30 seconds. Also what you need to do when you break the fire button on your **joystick.**

Resolution: See the fuller explanation under **High, Low** and **Medium** Resolution.

RGB: Acronym for Red, Green, Blue. These are the three primary colours which the ST uses to create its colour video display. Colours are specified as an RGB value. An ST has eight levels of intensity for each colour, creating 512 (8 x 8 x 8) different colours. An STE has 16 intensity levels, giving 4096 (16 x 16 x 16) colours.

Root Directory: Anything that is written directly onto a disk – that is, not in any **folder.** Also a very very small map which shows termites the way to the bottom bit of a tree.

RS232: An industry-standard interface connection for **peripherals** which require serial information. Serial information is sent **byte** after **byte** down the **interface** cable. On the ST's casing, the RS232 port is marked **"Modem,"** although serial printers may also be connected here.

Scroll: To move information up, down left or right, using the slider bars at the side of the **window.**

Scroll Bar: One of two bars that border an active **window. Click** on the arrows at the ends of the bar and the information moves in that direction. The shaded portion represents information which is not currently visible on the screen. The white block shows the portion which can be seen and it can be moved with the arrows, by clicking on the shaded part or by **dragging** the block itself.

Sector: **Tracks** on an standard ST disk are divided up into nine sectors each, each of which can hold 0.5k of data. These sectors and **tracks** are part of the way a disk keeps track of its data.

16-bit: A computer (like your ST) which can read in and write out 16 **bits** at a time. Consequently it runs a lot faster than 8-bit machines. Also the size of a very small Airfix model.

Size Box: The small box at the lower right-hand corner of a **window** which can be **dragged** to expand or shrink the window. Doing so is called "sizing."

Spacebar: The long horizontal key at the bottom of the keyboard which prints spaces when hit.

Sprite: The name given to any character in a game, usually mobile, that is animated and may or may not be controlled by the player. Also a popular soft drink.

TOS: Acronym for The Operating System, the main program stored on **ROM** inside the ST. It controls all the ST's functions and the operation of the **disk drives, mouse,** printer, video display and so on. In short, the brain of the ST.

Track: A circular path on a **hard** or **floppy disk,** which contains several **sectors** . The data on the disk is arranged into tracks like those on a record, so they can be read or written quickly.

Trash: The **GEM Desktop icon** which is used to delete **files** or **folders** from a disk. Once placed on the Trash icon, data is erased permanently.

Virus: A nasty little program which is stored in the bootsector (see **Boot**) of a **disk.** These viruses usually damage the data on your disks or temporarily change the way your ST operates (see **Ghost,** for instance). It's hidden, so you can't readily find it, and it runs when you boot from that disk. It lies in **memory** and can copy itself to other disks' bootsectors if not discovered and eradicated using a virus killer program.

Warm start: Rebooting your ST by pressing the **reset switch**. This does not clear the machine completely, so it doesn't remove any memory-resident viruses. Also supposedly what you get when you eat Readybrek in the morning. See **Cold Start.**

Window: The area that appears when you double click on a disk and which is used to display **files** and **folders.** You may have up to four windows on the **Desktop** screen at once. Also the large glass object that stops your room being really dark all day.

Write-Protect: To prevent a **disk** from being written to by the **disk drive.** Every floppy disk has a small tab in the corner; set it so that you can see through the hole in the disk. When it's in this position, no data (or **viruses**) can be written to the disk. ***stf***

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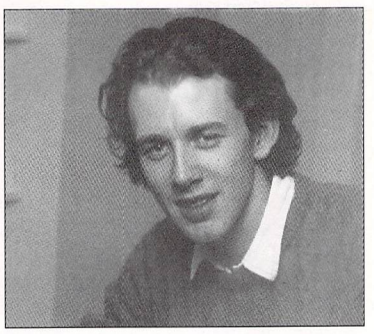
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Feedback



Write to The Editor, Feedback, *ST FORMAT*, 30 Monmouth Street, Bath, Avon BA1 2BW

LOST FOREVER

My son recently managed to write over his copy of the Microprose game *RVF Honda*. Since he had been unable to make a backup because of the protection, he was left without a copy of the game. We contacted the Microprose hotline with a view to obtaining a replacement. I was advised by the hotline that the game was no longer available and was out of production.

While we can appreciate that software houses are protecting their copyright, we do feel that, if they use copy protection, they should at least retain some sort of master copy for situations like this.

We would be interested to see what you can do about this, for it appears to me that if Microprose don't have a copy there isn't much anybody can do. We should mention that we have already tried to obtain a new copy from the retail trade without success.

A E Jenkins
Gloucester

stf: *I'm appalled by this situation. Software publishers regularly stamp their feet about backup devices, claiming that they're used for piracy purposes and that they should be banned. This attitude is perfectly acceptable as long as the software houses replace damaged disks. Using the excuse that the game has been out of production for two years is unacceptable.*

There may be a chance that you can repair the disk – it depends on how badly it's been damaged. If just the bootsector (the very start of the disk) has been written to, you can use the Ultimate Virus Killer *(£9.99 from Douglas Communications, PO Box 119, Stockport, Cheshire SK2 6HW) to repair it.* UVK *includes an option to repair the bootsectors of many popular game disks, including* RVF Honda. *But if a larger area of the disk is destroyed (say by having a text file saved onto it) even* UVK *can't help.*

We took the matter up with Microprose, and I'm happy to say that they've now managed to find a way to replace your disk. A new copy of RVF Honda *should be with you soon. I think all software houses should replace damaged disks that you can't back up.*

BUT YOU'RE NOT ALLOWED TO DO THAT

I'm writing to ask why, when I'm backing up my games, the dialog box appears saying, "the destination disk is a different sort to the source disk." Since I am quite new to the ST(E) I am not sure what this means.

Could you please tell me where I could get a decent STE manual – when I bought my ST, it didn't have one.

D Butter
Doncaster

stf: *First, you have no legal right in this country to make a backup of a game disk. It's a ridiculous situation because it can cause problems like the one in the letter from A Jenkins of Gloucester: what happens if you accidently corrupt a disk and it's no longer available?*

What's happening in your case is that the game disk is formatted with a different number of tracks or sectors from the disk you're trying to copy it to. The number of tracks and sectors on the disk defines the way the data on the disk is stored. TOS-formatted disks are formatted with 80 tracks and nine sectors, but many game disks use a different combination, so the Desktop Copy function can't cope – it can only copy disks that have the same track/sector combination. The game disk is, in all probability, specially protected anyway, so even if was in the same format the Desktop couldn't copy it.

It's not just game disks that are formatted like this; you can do it yourself with one of the hundreds of disk copiers in the Public Domain which are able to format and copy these unusually-formatted disks – see page 48 for our extensive PD library directory. Of course, ST FORMAT *can't condone the illegal backing-up of game disks (even if it is a good idea).*

As for the manual, the shop where you bought your STE should have supplied you with it – it's part of the standard package. Hassle them first, but if you have no joy give Atari a ring on ☎ 0753 533344.

BLUES VIDEOS?

From Vincent Pargney,
Titus Games

Thank you for the *Blues Brothers* review in the December issue of *ST FORMAT*. The article mentions that "The brothers look good as little sprites but apart from that there isn't any reference to the film." Your reviewer James Leach sums up by saying: "Doesn't tie up with the licence like, say, *Indiana Jones and The Last Crusade*." The main critical points of this review are based on the difference between the films and the game. I was somewhat surprised to read that, since we have pointed out to you that Titus secured the rights for the *Blues Brothers* video game based on the characters, not the movies.

stf: *The game was given to this freelancer to review because he is particularly good at this type of platform game. He had never heard of a* Blues Brothers *video game (and neither have the rest of the team), so assumed you were writing the game with elements of the film – and let's be honest, that's what most of your customers are going to think. If you say it's a licence from a video game, then we'll take you at your word – but the fact remains that* The Blues Brothers *is an average platform game with few redeeming facets. Its rating of 72% is justified.*

CATALOGUING MY COLLECTION

My youngest son (14) owns a 520 STFM. He occasionally lets me use it and I have become a great fan. What information I have comes from asking my son questions and reading *ST FORMAT*. I would be grateful, therefore, if you could point me in the direction of a program that would help me catalogue and select items from various collections. Using my record collection as an example, I would like to be able to prepare a list in any order, each recording to have several associated fields; for the program to sort the list into order (say alphabetically); and for me then to be able to select items such as "all symphonies," preferably "all Shostakovich symphonies," or even more precisely "all Shostakovich symphonies on cassette" and then print them.

I am told that such requirements are relatively easy for a home computer. I have tried several disks from the PD libraries, all apparently offering to do the job but not really able to do the full listing, sorting and selecting that I mentioned.

I would be grateful for your advice as to a suitable package – if it were cheap enough, I might actually buy it.

Tom Fay
Stretford

stf: *The program you need to solve all your problems, Tom, is a database. If you've tried some PD programs and*

ARE *YOU* A SINGLE-SIDED ST OWNER?

I've been the proud owner of a brand new STE for six months and I've bought every issue of *ST FORMAT* in that time. However, I must admit to being very confused by all this talk of Side A and Side B. As far as I'm aware, Atari haven't sold a single-sided ST for almost three years. The vast majority of serious software and all games are now being released on double-sided disks, so everyone who owns a single-sided ST must have upgraded their machines by now. Why can't you abandon your double-sided option and make the disk easier to use for everyone?

S Laugharne
Cheshire

stf: Our aim has always been to talk to as many ST owners as possible. This has meant formatting our Cover Disk in such a way that both single- and double-sided ST owners can access the information contained on it. However, I take your point that the vast majority of software publishers now distribute their programs on double-sided disks. In addition, the cost of upgrading to an internal double-sided drive has fallen dramatically: Power Computing even sell an internal double-sided drive (the PC72001) for as little as £45. Give them a call on ☎ 0234 843388 for more details.

As of next month's issue I intend to abandon the single/double-sided format of our Cover Disk – unless I receive letters from any disgruntled single-sided ST owners in the meantime. By changing the Cover Disk to an ordinary double-sided format, we can squeeze more files onto the disk and make it easier for you to access the information – there'll certainly be no need to hunt through an array of folders any more.

found them lacking, you should be thinking about buying a commercial package. They offer greater flexibility and storage capacity than their PD equivalents, but obviously at a price – databases are notoriously expensive.

We did a roundup of the best databases in our "serious software" feature in issue 28 of ST FORMAT *(see page 142 to order a copy if you missed it). The most comprehensive package on the market is definitely* Superbase Professional *from Precision Software (☎ 081 330 7166), but it does cost a hefty £250. It can do all you describe and more. A more modest purchase might be* Prodata *(£99.88 from Arnor ☎ 0733 68909) – it's not quite as powerful or easy to use, but it'll do the job.*

USELESS UPGRADES

After reading the letter from D Hardy in issue 29, I felt I had to write. What concerns me is compatibility between the STE and the STFM. How will all the programs – and also Atari themselves – stand on the STFM in another couple of years? Will it be an obsolete machine and regarded as such? I have recently spent a lot of money on updating/upgrading my STFM, so I feel slightly bemused at the thought of wasting my money, memory upgrades, hard drives and printers. Will Atari stand by the STFM and give us a chance for, say, an upgrade board at a reasonable price so we won't have to worry?

M Radford
West Midlands

stf: *Whenever a popular micro like the ST undergoes a major upgrade, there are always people who worry about the future of their older machine. These worries generally turn out to be unfounded. Atari are indeed now promoting the STE as the "standard" machine, but they and the software houses aren't immediately going to abandon the STFM. It just wouldn't be worth their while, because there are thousands of people in Britain who still have an STFM and are quite happy with it.*

The STE's been around for over two years now, yet there is still only a handful of games and virtually no serious software that takes advantage of its superior features. If this trend continues you can be quite sure the STFM will never be completely obsolete.

As for the hardware you say you've recently acquired, you should have no problem using the hard drive and the printer with an STE if you do upgrade. The only major hardware incompatibility that the STE has suffered was the DMA chip problem that surfaced shortly after the STE was released, which meant some models of hard drives wouldn't work with it, but there should now be no STEs with the faulty chip still out there.

MASSIVE MEMORIES

I have a couple of ideas that could improve the power of modern computers but I haven't got the resources or the money to build them for myself, so I am wondering if you can help me get in contact with some companies that will be able to help me make these devices.

The first device is a new type of memory for computers that can store about 10,000 gigabytes of data on a slice of silicon one centimetre square – it works by storing electrical charges in individual atoms of the slice. Also, the memory can work at a similar speed to modern DRAM chips but it can store the data for much longer, so it can even replace floppy disks and, if you use it like a cartridge, it will also stop piracy.

The second idea is more of a new technique for making silicon chips by using radiation pressure to paint single atoms on a silicon base. The idea is similar to an idea that NASA are working on, but, instead of using sunlight to push a satellite attached to a giant sail, the process is scaled down and it uses a laser to move atoms or small molecules. This new technique will enable you to construct smaller components, then with present technology it will allow you to make 3D components instead of 2D components (which is all we can do today) because the paths between the circuits will be shorter and the chips will work a lot faster.

Robert Coare
Essex

stf: *Well, your ideas certainly sound, er, interesting, Robert. I'm not quite sure why you're written to us about them. Were you thinking of producing these devices for the ST? Won't they be a little bit, um, expensive? I'm sure IBM (IBM Research Centre, Hursley, near Winchester, Hants) or Inmos (1000 Aztec West, Bristol, BS12 4SQ) would be very interested in seeing your designs for these devices too.*

For the bemused and bewildered, a gigabyte is 10^9, or 1,000,000,000 bytes; so 10,000 gigabytes is 9,765,625,000K – which is quite a lot, really. And in a silicon slice one centimetre square. Sounds incredible, but then a machine with the power of your ST would have filled a large room only 25 years ago. Send us a finished unit when you're famous.

RECOMMENDED HARD DRIVES

From Brian Davies,
Ladbroke Computing International

I must point out that we as a company take exception to some of the info and conclusions drawn in your hard drive roundup in the October issue (*STF* 27).

1. The Protar installation is said to be "very simple and very well explained in the manual." Ours is "not easy, since there is no labelling on the DMA ports." To be consistent, perhaps your reviewer should have read our manual as well.
2. The "Time Trials" of all the drives using the same interface and mechanism (ours, ICD and Third Coast's "32-MByte" that was actually a 52MByte) should produce the same times. Any deviation must be due to the manner of timing device used. Since the ST does not multi-task, a separate device must have been required.
3. As mentioned for other drives, ours is auto-park, auto-boot, is fully compatible with the Atari specifications and is very quiet, no fan. It also has DMA select and power switch easily accessible, 7MBytes of software (MCP, Alternative Desktop, Backup software x 2, Demo programs, etc), two-year warranty, speed, etc.

The review was ill-informed, inconsistent and drew conclusions based on erroneous data. We would be pleased to see this rectified.

stf: *First of all, let me say I'm surprised you feel a need to complain, Brian. The review in question was part of a roundup of 15 hard drives, each accompanied by a 150-word mini-review. Your drive rated third at the time with a staggering score of 81% and has been part of our "recommended buy" selections in several issues since last October.*

I've been to great pains to check the facts with both my reviewer and the various distributors concerned:
1. When some people buy a hard drive, myself included, they yank it out of the box and connect it up before even reading the manual. In this case, it's important that the DMA ports are labelled. You certainly shouldn't need to refer back to the manual if you want to change the connections in future. The ports on the Protar drive are labelled in English, the ports on our Ladbroke review model weren't labelled at all.
2. The time trials involved averaging ten tests with a stopwatch for each operation on each drive. Any errors would have averaged out, and couldn't have favoured any one drive anyway. I'm sur-

ADVENTURES IN PLAGIARISM?

Looking through issue 29 of *ST FORMAT* I noticed a very familiar picture. This picture, one of the *Adventures of Robin Hood* screen shots – the one where he is being hanged – is familiar to me, because I actually have a postcard of the original picture I think this is based on. If you look at the left hand side of the screen shot, it's virtually exactly the same as the left side of a painting by Phillip James de Loutherbourg called *Coalbrookdale by Night*, painted in 1801. For those who don't know, Coalbrookdale is where the famous Abraham Garby's had their iron works.

I've let you in on this little bit of information because I thought it unfair that the artist who did this screen should get all the credit. Looking closer at the buildings which take up most of the left half, it looks like they have been digitised as well!

James Bell
Shropshire

stf: ***Outrageous! Disgraceful! Appalling! Well, maybe not. We contacted Millennium about this somewhat odd situation. Ian Saunter, Millennium PR man (and, incidentally, co-designer of the* Robin Hood *game) said that although the left side and the sky of the picture had indeed been digitised, he wasn't sure if it was from the picture you mentioned. His recollection is that the sky was "one of the bits of digitised sky we have hanging around." The hanging man himself was definitely drawn from scratch by artist Rob Chapman.***

Here's the offending picture from* The Adventures of Robin Hood. ***Has anyone else noticed any other famous paintings making an appearance in games? Do you think digitised images should be used in this way?

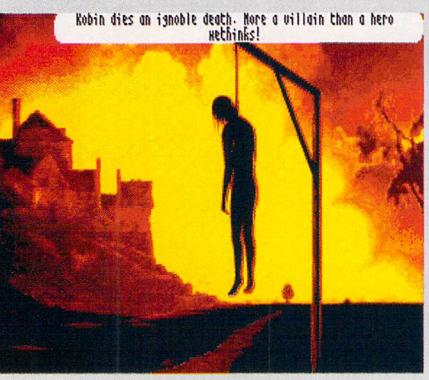
WHAT'S GDOS, THEN?

I am desperately seeking the GDOS Dev Kit in order to develop my own colour inkjet printer drivers. Please, don't sing the same old song about the beautiful GDOS drivers from *Timeworks* and *Migraph*, because they don't work for the Hewlett packard Paintjet or for its bigger brother XL and the new HP Deskjet 500C.

There are plenty of output device drivers to be found for the PC and Mac but few ST printer drivers which can support the higher performance colour inkjet and thermal transfer printers with resolutions between 180 and 300 dpi. Because of this, I programmed my own colour printer driver for image output in C. It is technically possible, with far better results than PC and Mac owners could ever dream of. Unfortunately, my self-made driver doesn't support Metafile output. Is there any secret source or a magic word to help me find out the GDOS information I need?

J Likos
Finland

stf: ***Many people have written in expressing an interest in GDOS, the ST's Graphic Device Operating System. It's a fairly complicated area, and certainly something that can't be sufficiently covered in an answer to a letter. For these reasons I'll be running a feature all about GDOS very soon, but what I need to know is what you need to know. If you have any questions on the workings of GDOS (such as: what is it? What does it do? Why do you need it?) write to GDOS? Sounds A Bit Odd To Me,* ST FORMAT, *30 Monmouth Street, Bath, Avon BA1 2BW.***



● **The hanging of Robin. Original?**

prised you suggest that the setup was dodgy simply because one of the timings didn't agree with your estimations. I'll agree that this suggests it may have been a one-off with the particular drive sent to us for review, but this is precisely why your drive was given a speed rating of 93%.

3. In the intro to the roundup, we stated that all the drives came "complete with all relevant utilities to get started." In the review of your drive we mentioned its quietness, auto-parking, booting and the DMA selector. We also stated that the front-mounted switch "makes life easy but is prone to knocks" and we mentioned the long warranty. In view of this, I cannot agree that there was anything wrong with our review.

BACK INTO CHEAT MODE

Please help me! I'm having trouble playing two of my favourite games – *Venus* and *Virus*. I keep running out of energy. Do you have any hints to help me out?

Hayley Clarke
Macclesfield

stf: *We've got just what you need! In* Venus *from Gremlin, all you need to do is press <Undo> until the words "Cheat on" appear. This gives you infinite energy. In* Virus, *from Firebird, hold down <Enter> and O, then <Enter> and P. If the cheat mode has been activated, a red bar appears below the green altitude line. Pressing L gives you an extra life and missile, F boosts fuel to full. For more cheats, turn to Gamebusters on page 85.*

MEDIUM BOOT-UP

Right. First of all, I've got a 520 STE upgraded to 1MByte and I tend to use *ST Writer Elite* for all my word processing, and a great job it does. What I want to do is make *ST Writer* autoboot in medium res. I have tried everything I know, installing it from Desktop, putting it in an AUTO folder, *Superboot v5.5*, *Stargen* and even *Autoload v1.04* – with no success.

The program boots up in low res but there is nothing wrong with my eyesight, so that's no good to me. I'm that desperate I have even thought about buying something I don't really need – *Neodesk*. It's only the price tag that puts me off and no guarantee that it's the answer.

Pete Cassar
Easton

stf: *It sounds like you have one of the early versions of the STE that was unable to boot in medium resolution. What you need to do is alter one byte of your saved DESKTOP.INF file to make the STE try to boot in high resolution. Since it can't do so (on a colour display) it defaults to medium res.*

Using a text editor (ST Writer Elite *itself is ideal), find the line in the file that reads "*`#E 18 12.`*" Change the "12" to a "13," so you've got "*`#E 18 13.`*" Resave the file as ASCII, reboot and you'll be in business.*

MULTI-PLAYER MADNESS

My friend and I enjoy two-player games that we can play via the modem (RS-232) ports, but not using a modem. We set up our STs and monitors so we're facing one another. We have a few games that we play in this fashion such as *Stunt Car Racer*, *Falcon*, *Populous* etc. We would be grateful if you could tell us what other software supports play by this method.

L R Rigden
Faversham

stf: *There seems to be an increasing number of games incorporating a simultaneous two-player mode, perhaps because programmers have realised just how much more fun it is playing against another person rather than your ST. Last month we reviewed* Populous 2, *which comes with a two-player option. Programming team Bullfrog are especially keen on multi-player games:* Populous 2 *only scratched the surface of multi-player possibilities. Using the MIDI ports on the side of your ST you can connect many STs together at once – imagine the possibilities then!*

I'm planning a feature for the April issue explaining the extraordinary possibilities for two-player games. They make bloody excellent games, it's just a hassle sorting out the leads. Don't miss it!

● Got something to say? Write to The Editor, Feedback, ST FORMAT, 30 Monmouth Street, Bath, Avon BA1 2BW. Technical queries should be marked Desktop rather than Feedback.

MODEM MYSTERIES UNSCRAMBLED

I have just recently bought a modem on the cheap off an old mate of mine, though he never supplied me with any kind of "instructions." To be honest, I haven't got a clue on how to set all the different kinds of dials and settings. That's where you come in. Being a monthly reader of the best ST mag around, I thought I would contact you to see if you could help me. I've tried looking in July 1990's issue on modems but it wasn't much use, so I've drawn a very "rough" copy of the modem and sent it to you. What do you think? Yes, I thought you'd say that.

Anyway, I would be ever so pleased if you could give me any information whatsoever, so I can actually phone people and get onto Bulletin Boards. Plus, if possible, could you give me some phone numbers to try?

Mike Hardy
Lancashire

stf: *From the drawing you've enclosed, I would say you've got a WS2000 from Minor Miracles. I used to own one of these modems myself about five years ago and it provided me with my first introduction to the world of comms. Modem technology has progressed in leaps and bounds in the meantime, and it's now possible to get your hands on much faster modems at increasingly attractive prices. The WS2000 is a manual dial modem so you can't get it to dial a telephone number for you. Instead, first switch your modem to ORIGINATE mode, then select the baud rate (300 baud or 1200/75 if your software can handle split baud rates – most can't). Dial the bulletin board (BBS) number yourself, listen for a high-pitched tone, then turn your modem to the ON-LINE position. When you've finished with your call, switch back to the OFF-LINE position. Modems now operate at speeds from 2400 baud (roughly 240 alphanumeric characters per second) upwards, so if you log on at 300 baud most BBSs should be able to step down and respond, but don't expect any speedy response.*

Here's a list of BBSs to try.

Lightfingers Place, Bournemouth ☎ 0202 485723. (2400 baud)
Micro-Mola, Plumstead, London ☎ 081 316 7402 (2400 baud)
Sheffield Alt, Sheffield ☎ 0742 325232 (2400 baud)
The Hotel BBS, Rochester, Kent ☎ 0634 831389 (1200 baud)
The Village, Bromley, Kent ☎ 081 464 2516 (2400 baud)

If you want to leave mail for STF, *you can contact the Bath BBS ☎ 0225 840060 (2400 baud). They also have our Cover Disks on-line.*

SHORT BUT SWEET

The Feedback tray groans daily under the volume of bulky letters which pour into it, so put your question on the back of a postcard and you're more likely to get a reply!

I need help. I am trying to find two games – one that was reviewed in a previous issue and one that is fairly old and written by Mike Singleton, who helped with *Midwinter 2 – Flames of Freedom*. The games are *Castle Master* and *Doomdark's Revenge*.

Neil Gow
Cuckfield

– Castle Master *is now available on Domark's* Virtual Worlds *compilation (£29.99 Domark ☎ 081 780 2222).* Doomdark's Revenge, *as far as we know, was a Spectrum-only game that was never converted to the ST.*

In your roundup of your personal favourite games in *STF* 25, your reviewers found these games the best in five categories:
Shoot-'em-up –*The Killer Cloud*
Platform Games – *Enchanted Lands*
Simulations – *Microprose Golf*
Adventures – *Secret of Monkey Island*
Puzzles – *Lemmings*.
I think these five games should receive awards for Games Of The Year 1991.

Ross Teagle
Bournemouth

– *Take a look at our Classic Games feature on page 53 and you'll see our pick of the games of the year. Check out* Populous 2 *and let us know how you think that rates by comparison.*

Could you send me the address of a company called zzSoft, publishers of a book titled *Introducing Atari ST Machine Code?*

J Campbell
Scotland

– *The address you're after is: zzSoft, 25 Honeyhole, Blackburn, Lancashire BB2 3BQ, ☎ 0254 672965.*

I'm starting a user group for *GFA Raytrace* owners. We have a member's library and quarterly newsletter. Send a sample of your best work – raytraced screens, wireframe data, or texture map pics in Spectrum, NEO or *Degas* format on a disk to subscribe to GFA Raytrace User News, c/o Nick Smith, 4406 5th Avenue South, Minneapolis, MN 55409, USA

– *It seems strange that GFA appear to have lost interest in such a worthy program as* GFA Raytrace, *especially since it's the only commercial raytracer you can find for the ST. It's not perfect by any means, but its very faults provide the best reasons why it should be updated now and again. A user group can only help there. Consider the group.*

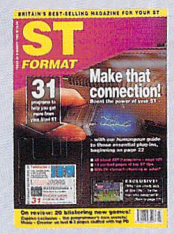
BACK ISSUES

SORRY! ISSUES 1 – 18 ARE SOLD OUT

ORDERING Please use the subscription coupon opposite. Prices per issue include Cover Disk, packing and postage. Please note that issue 30 is a little more – but you do get two disks! UK £3.75 (No 30 £4.75), Europe £5.20 (No 30 £6.20), Elsewhere £7.25 (No 30 £8.25)



ISSUE 19
February 1991
Disk: *Champion of the Raj*; full version of *GFA Basic 2*, a complete database and more besides!
Inside: Get to know your ST; the STF gold awards 1990; classic games and software



ISSUE 20
March 1991
Disk: *31* programs, including *Turrican 2*, *Mastersound 2* and 13 AUTO programs.
Inside: Complete guide to plug-ins; DIY hardware projects; *Sim Earth* preview; 14 pages of top tips



ISSUE 21
April 1991
Disk: Huge animation package *plus Gods* & *Moonshine Racers*
Inside: 21 pages of animation; music tips from Neil Palmer; program in assembly
Plus: *free* 32-page buyer's guide extra



ISSUE 22
May 1991
Disk: *Stormball*, *Devpac 1* programming package, *exclusive* music files by Neil Palmer, 5 disk utilities
Inside: DTP made easy; recovering lost files; complete WP roundup; RPG top ten



ISSUE 23
June 1991
Disk: 15 programs – *3D Construction Kit*, *RezRender*, American Football game, *seven* invaluable utilities
Inside: 3D secrets; top ten 3D games; complete guide to ST communications



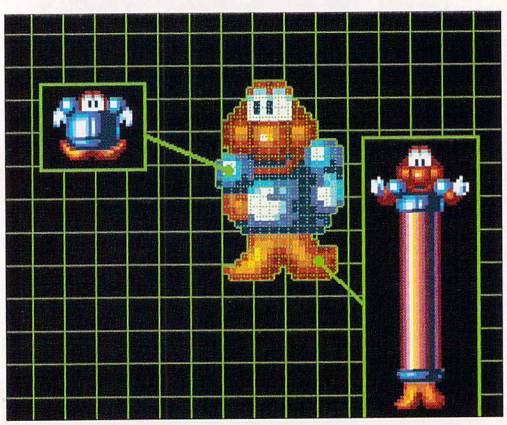
ISSUE 24
July 1991
Disk: *Atomino* demo, *Llamatron* complete game, a better file-selector and more
Inside: Complete ST video guide; digitisers roundup; *exclusive* details of Atari's new portable "STs"



ISSUE 25
August 1991
Disk: *Mega lo mania* demo, *Flexidump* printing program, a diary utility and more
Inside: 20 printers scrutinised; memory upgrades guide; emulators roundup; Soul II Soul interview

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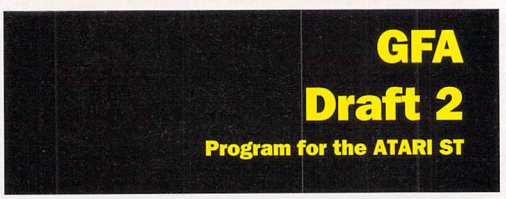
ROBOCOD



The new cutesy platform game from Millennium, played over eight massive levels, each with its own crazy style – battle deadly dolls and teddies in the Toys section, murderous instruments in the Music department, killer soaps in the Bathroom, and much more! Cute and colourful graphics blend with fast and challenging action to produce a thoroughly addictive romp!

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GFA DRAFT 2



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ISSUE 26
September 1991
Disk: *Ultimate Virus Killer, Magic Pockets* demo, TOS 1.4 fixes and a swag of utilities
Inside: Protecting your ST from viruses; STs produce TV ads and business cards; *Calligrapher* tested



ISSUE 27
October 1991
Disk: *Rolling Ronny* demo, *ST Writer Elite v4*, spiral pattern generator, *six* utilities
Inside: Professionals' graphics techniques; hard drive roundup
Plus 24 page buyers' guide supplement



ISSUE 28
November 1991
Disk: *Three* fractal programs; *MiG-29M Super Fulcrum; Home Accounts 2* demo
Inside: All you need to know about fractals on your ST; 25 "serious" packages reviewed; floppy drive roundup



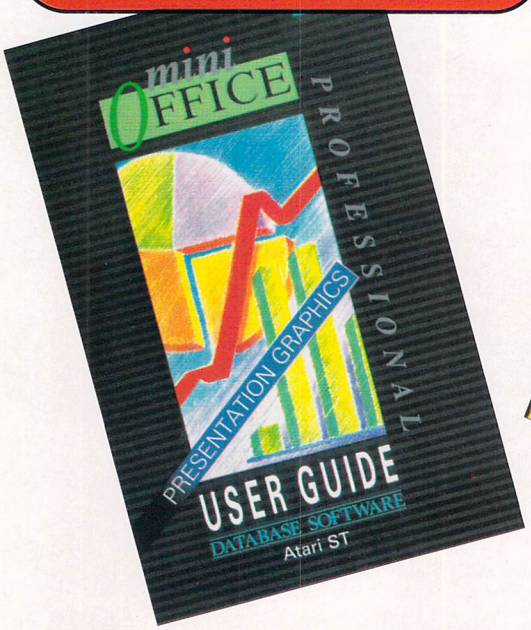
ISSUE 29
December 1991
Disk: *Autoplay* intro sequence creator; *Daylight Robbery* and *Stereo Replay* demos
Inside: Making your own intros; score-writing packages; ST-related book roundup; *Band in a Box* review



ISSUE 30
January 1992
Two Disks: *complete* Sound & Vision packages, *plus* "Get Started" supplement; *Populous 2* & *Baby Jo* demos; & much more
Inside: Being creative on your ST; mono-compatible games

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ST/MAG/0292

February quiz

This month's slightly different "quiz" has been scientifically proven to be resistant to stains, withstand as much as 200 square pounds per inch of pressure, and leave your hair in a clean, manageable state without scratching. Not only that, it can win you over £500 worth of Roland music kit

You're probably still reeling from last month's surfeit of Sound 'n' Vision goodies – *Canvas* and *Sequencer One*, the complete packages, on our special extra Cover Disk. Good. You're just where we want you – full of inspiration to enter the February quiz. (If not, you probably missed last issue, didn't you? Fortunately, the *FORMAT* back issue service is on page 142...)

Have you looked at this month's Cover Disk yet? Of course you have, being the thoroughly sensible and level-headed sort of person you are. You might just have noticed the ten samples lurking daintily thereon, donated by *Sequencer One's* creators, Gajits Music Software. Doubtless you've been mucking about with said samples in *Sequencer One*, and you might even have put together some tunes. Now, this is where it gets interesting.

Roland, producers of fine musical kit to musicians everywhere, are offering over £500 worth of MIDI gear to the *STF* reader who comes up with the best song written with *Sequencer One* and any (or all) of the samples on the Cover Disk. The winner will receive a Roland PC-200 keyboard, plus one of their new PCM computer modules – a total value of over £500. There are also ten fabulous runners-up prizes of Gajits T-shirts (for the ten most fabulous runners-up, of course).

To make things even easier, you can use up to five other samples from different sources, too. Have a look at the Gajits Sample Series, from which the ten samples on the Cover Disk were taken. This is available directly from *STF* at a very special price – see page 144 for more details. Also available are the *Sequencer One Plus Upgrade Kit*, the *Sequencer One User Kit* and the *Hit Kit* – very useful for writing your prize-winning song.

So, dig out *Sequencer One*, load up those samples, and get writing that song. Send your entries (in *Sequencer One* format) on a floppy disk to Song? I've Virtually Written A Symphony, *ST FORMAT*, 29 Monmouth Street, Bath, Avon BA1 2DL by Friday 7 February. You could end up £500 worth of kit better off!



● You could win this fully featured Roland PC-200 keyboard *and* the fantastic CM-300 sound module. The PC-200 is a lightweight portable master keyboard with four octaves plus a transposition switch, giving you access to a total of six octaves. It is pressure and velocity sensitive, and even enables you to execute program and MIDI channel changes. The CM-300 is a self-contained 16-part multi-timbral sound module, capable of playing 24 notes at the same time – and because it's a PCM system it offers CD-like sample quality. Useable with any sequencer program, this complete £500 system could be yours!

THE RULES BOX

1. You have until Friday 7 February and not one millisecond later to wing your entries to what we laughingly call the *ST FORMAT* office, down in balmy Bath (just off the Norwegian coast, left of Bavaria – you can't miss it... unless you keep your eyes permanently closed or something).

2. Employees, debtors or friends of the family of debtors of employees of Future Publishing, Roland or Gajits Music Software will find that an impenetrable force immediately surrounds their body if they try to enter this competition, immobilising them until they give up that futile and pathetic exercise.

3. Newly installed in the *FORMAT* offices is a state-of-the-art Perfectly Automatic Unbribable Liar Advisor (or PAULA for short). If this sophisticated piece of equipment detects more than one competition entry disk from the same person, the disks are instantly formatted and used as beer mats.

4. Perhaps you think these prizes are only a front for the real ones. Well you're wrong, see – darn wrong. These prizes are the ones on offer, so if you win, it's that or nothing. No cash. No alternatives. No bag on the head. No future. (Oh God!)

5. You can trust the Judge. He's been a friend of the family for years. We're like that (*crosses fingers*). You'd never meet a nicer person. But he does like his own way. Ooh, he's a devil for that, oh yes. So you'd better not cross him once he's made up his mind. He has connections, y'know.

THAT JANUARY QUIZ – ALL THE ANSWERS

Immortality in form of a permanent place in the *Mega Lo Mania* data disk was the spectacular prize on offer last month. Here are the answers to those, er, teasers... Next month: the true identities of those demigods you'll laugh at for years to come!

1. In a game of *Mega Lo Mania* you play against up to four opponents: Scarlet, Caesar, Oberon and – who? **Madcap**
2. A game previewed in *STF* 30 features a troubadour who can sing songs to aid your party. Name one of those songs. **March of the Bold Ones or Warriors Awakening**
3. Which is the first commercial game to use the Trojan Phazer Light Gun? ***Space Gun***
4. In a game reviewed in *STF* 30 you have to throw salami at the enemies to kill them. What's the name of the main character in this game? **Rolling Ronny**
5. Name one of the two instruments that Dave Clackett played during his time in the Royal Marine band. **Flute or tenor sax**
6. How many dip switches does the Laserjet 3P have? **Six**
7. How many islands are there in *Mega Lo Mania*? **28**
8. What's the name of the car in *Wild Wheels* that acts as a goalkeeper? **Guard**
9. A game previewed in *STF* 30 features "one massive mutha" of a monster. What's its name? ***Space Crusade***
10. Why can't you install the ST-IC software on a hard drive? **Because it accesses drive A**
11. What is a MIDI event composed of in *MIDIStudio Master*? **A note value and length info**
12. When you pause in a game of *Mega Lo Mania*, what does your secretary say? **"Putting you on hold."**
13. How many difficulty levels are there in *Junior Typist*? **Eight**
14. What's the footprint of the only laser printer reviewed in *STF* 30? **350 mm x 405 mm**
15. How many possible spells are there in *Legend*, according to Tag? **2 x 10^{18}**
16. How long does the ST-IC give you to program an RCU button before it gives up? **15 seconds**
17. What's the name of Jonah Hayes' ship? **Er – whoops! This refers to *Suspicious Cargo*, the review of which got held over to this issue at the last minute, so you wouldn't actually have found the answer in last issue. We therefore accepted any answer for this one. (Except for obscenities. Some people just take these things *too* seriously...)**
18. Nice parallax, shame about the gameplay? ***Deathbringer***
19. How many words can you have in a single word bank in *Robot Words*? **68**
20. At the end of *Mega Lo Mania* there's a huge scrap where everyone tries to kill everyone else. What's its name? **The Mother of Battles**

DECEMBER QUIZ WINNERS

50 of the most wonderfully wonderful games available for the ST were given away back in December. These are the winners: **David Stanford** of **Derbyshire, Jean Mouvet** of **Belgium, Ron Green** of **West Yorkshire, J C Moncur** of **Surrey, Jackie Hughes** of **London, R D Frodsham** of **Wigan, A Tinker** of **Wiltshire, Matthew Fyles** of **Cheshire, E Henson** of **Surrey,** and **Mervyn Holden** of **Nottingham.**

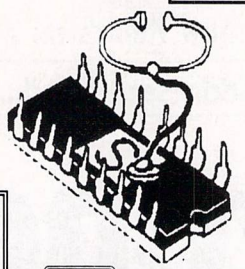
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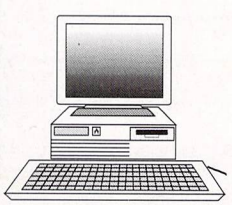
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Christmas is over, New Year's been and gone and now there's no more of *ST FORMAT* issue 31 to read either.

Except the collection of daft bits, stupidities and oddnesses called...

Twilight zone

AND THERE'S MORE...

You've read an awful lot this month about the wonderful talents of your ST. It's all very well having so much power at your fingertips, but can it earn you any money? Next month, we interview four completely different individuals with one thing in common – they're all using their ST to make them money. We explain how you could follow in their footsteps and give you advice on the kinds of possibilities available.

If that's not enough to get you back here on Thursday 13 February, then how about our review of *Timeworks DTP 2*? We've been giving it a severe testing this month and it's looking like being one hell of a DTP package. Next issue, we're going to be demonstrating everything you can do with this budget-priced DTP package – from writing party invitations to fully-fledged fanzines. Can't wait? Then pop down to our Special Offers page (see page 126) for the best deal you're likely to find.

For those of you who have invested in *Populous 2* (and if you haven't, why not?), we're giving away an exclusive world on next month's Cover Disk. We've been playing this classic god-game all through Christmas and eventually convinced programmer Peter Molyneux to give us our own version.

Then, we're kicking off a new Beginner's section to help new ST owners maximise the real power of their ST. And we're spicing up our *STOS* tips section by getting Asa Burrows from the *STOS* Users Group to answer your questions.

As if that's not enough, we've got all the best regulars – even more games cracked in next month's Gamebusters, all your techie troubles answered, exclusive news stories, details of the latest ST games and the best Public Domain programs reviewed and rated. It's all here, so make sure you are. See you on Thursday 13 February. To make sure of your copy and get a great deal besides, check out page 142.

SO THAT WAS 1991, WAS IT?

It being a New Year and all, the *ST FORMAT* team woke up for just long enough to let you know what their favourite games of 1991 were. As if you cared.

- **Mark Higham,** Editor and Peter Molyneux's chief PR person:
  Lemmings – Psygnosis
- **Neil Jackson,** Technical Editor and man with his head in the clouds:
  The Secret of Monkey Island – US Gold
- **Ed Ricketts,** Games Reviewer and recently devoid of much hair
  Llamatron – Llamasoft
- **Chris Lloyd,** Disk Editor and slight hippie:
  Battle of Britain – Lucasfilm
- **Alex Soboslay,** Production Editor and man who knows what "chiasmus" means without looking it up:
  Tetris – Notthatlhavetimetoplayitsoft
- **Paula Richards,** Production Assistant and possessor of seemingly hollow legs:
  The Stenographer's Quest – Legally-bound Software Inc.
- **Paul Morgan,** Art Ed and unrepentant Brummie:
  Populous 2 – Electronic Arts
- **Steve Fardy,** Art Assistant and book collector:
  That Crap Game With the Worms in It – Off-Hook
- **Steve Carey,** Publisher and er that's it:
  Excel – Tenreasonsonpapersoft

Hardly seemed worth it, did it?

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1. Keep it in the cupboard under the stairs for three years "in case you ever need it," then throw it away the week before you want to pack up your ST to move house.
2. Cut out the picture of the horrible child from the front who's pretending to know how to use an ST, wave it in front of next door's dog and see how long it lasts.
3. Line it with polythene, fill it with water and use it as an "opaque-look" fish tank.
4. Cut two eyeholes in it and sell it as an extremely unusual fancy dress costume.
5. Write a strong letter to the local newspaper about it, complaining bitterly about comprehensive education and suchlike, all because Atari missed out the E on Xtra.
6. Tear it up into very small pieces and use them to see how many interesting anagrams of "Atari" there are.
7. Throw it away.
8. Use it as a punchbag to ease your frustrations when that !*#!? cat in *Nine Lives* cops it again.
9. Use it to start the world's first (and last) collection of ST Xtra Curriculum Family Discovery Fun Learning boxes.
10. Put it away and forget about it, and get on with using your ST.

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